

# UCLA College

SUMMER 2019

Magazine

## THE FUTURE

OF...

aging, disease, brain health,  
biodiversity & more

**Advances in the Life Sciences**







**The Deans of the UCLA College**  
From left:

**Miguel García-Garibay**  
Dean of Physical Sciences

**Darnell Hunt**  
Dean of Social Sciences

**Patricia Turner**  
Senior Dean  
Dean and Vice Provost for  
Undergraduate Education

**David Schaberg**  
Dean of Humanities

**Victoria Sork**  
Dean of Life Sciences

## HAPPY 100th BIRTHDAY, UCLA!

**UCLA's centennial kicked off in May with a spectacular light show projected onto Royce Hall, and the city of Los Angeles marked the anniversary by lighting up landmarks like City Hall and LAX in blue and gold.**

The members of the Class of 2019, the first of two centennial classes, celebrated their graduation in June. Centennial-themed events will continue all year, and we hope you'll join us for as many as you can.

As the academic heart of one of the world's great public research universities, the UCLA College is already looking ahead to a future of extraordinary impact, where opportunities abound, challenges are solved, and lives are transformed.

UCLA Life Sciences, featured in this issue of the magazine, is a great example of a division that is leading the way. Our scientists are at the forefront of research on aging, disease, brain health, the human microbiome, and conservation of biodiversity — research that is leading to a better future for humanity. These faculty also serve as mentors, involving undergraduate students in their research and inspiring them to pursue careers in science and medicine. UCLA College truly is a place where knowledge solves.

It's an exciting time to be a Bruin!



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**ON THE COVER**

The search for the fountain of youth, cures for cancer, the end of pandemics, treatments for autism and depression, interventions for imperiled ecosystems and more in the Life Sciences.

**COLLEGE DEVELOPMENT**

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## CENTENNIAL CELEBRATION

### *Light show on Royce Hall launches the yearlong UCLA 100 celebration*

**The Los Angeles International Airport's Gateway Pylons glow with UCLA blue and gold.**



On May 18, Royce Hall was the canvas for “Lighting the Way,” a spectacle of light and sound, with images and video that highlighted many of the people, moments and memories that have shaped UCLA since its founding 100 years ago.

Dramatic explosions of design and color turned the stone face of Royce Hall into a vibrating source of light and animation, and the show ended with a call to action: “How will you light the way?”

Several thousand people blanketed the lawn in front of Royce for the 10-minute projection show, which highlighted accomplished and influential alumni, professors, administrators and coaches, spanning 10 decades of UCLA’s history. Among those featured were Nobel laureates Professor Emeritus Lloyd Shapley and alumnus

Randy Schekman; pioneering technologists Martine Rothblatt and Vint Cerf; groundbreaking faculty members Brenda Stevenson, Casey Reas, Leonard Kleinrock and Andrea Ghez; legendary coaches Valorie Kondos Field and John Wooden; star student-athletes past and present, including Dave Roberts and Katelyn Ohashi; and U.S. Poet Laureate Juan Felipe Herrera and Los Angeles Mayor Tom Bradley.

The show capped a packed day of activities that kicked off the yearlong celebration of UCLA’s centennial. Earlier in the day, thousands of Bruin alumni returned to campus for presentations, panel discussions, tours, art-making activities and performances as part of UCLA Alumni Day. About 1,800 guests were also treated to a special centennial edition of the annual TEDxUCLA conference in Royce Hall, with UCLA and guest speakers reflecting on the theme of time.

**SAVE THE DATE!**  
A yearlong series of programs and events will mark UCLA’s 100th birthday.

Here’s a sampling. Find details and more events at <https://100.ucla.edu/events>.



**“TO BE HERE TODAY, YOU KEPT  
REACHING HIGHER FOR YOURSELVES  
AND FOR YOUR FUTURE.”**

— MICHELLE OBAMA

## UC and Reach Higher Host Former First Lady Michelle Obama at UCLA

The University of California was selected by Reach Higher, the college access and success initiative launched by former first lady Michelle Obama during her time at the White House, to co-host its 2019 College Signing Day event on May 1 at UCLA’s Pauley Pavilion.

College Signing Day is a national celebration of all high school seniors and transfer students, especially those from low-income, underrepresented, and first-generation college-going backgrounds who have committed to pursuing higher education — whether at a community college, a four-year college or university, or a professional training program, or by joining the military.

UCLA Chancellor Gene Block said that he hoped the College Signing Day events would send a clear message to students that a college education is attainable, regardless of family income, background or other circumstances.

“As a first-generation college graduate myself, I am proud that nearly a third of UCLA undergraduates also go on to become first-generation college graduates,” Block said. “Public institutions like UCLA must always strive to make higher education accessible through outreach efforts that encourage students to apply and resources that support their success while they are here.”

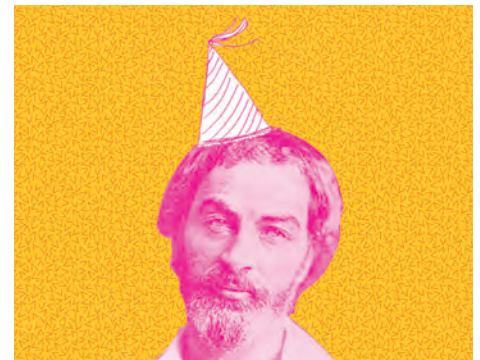
**Watch** video from the event: <https://ucla.in/2JePhQm>.

## WHITMANIA!

### Song of Ourselves: Celebrating the Radical Optimism of Walt Whitman and UCLA

To commemorate Walt Whitman’s 200th birthday, UCLA Writing Programs is presenting “Whitmania,” a series of free performances, readings and workshops to honor one of the nation’s most well-known poets. The hallmarks of work by Whitman, often described as the father of free verse and America’s first poet of democracy, align with some of UCLA’s values, like community engagement for the greater good.

**Learn more** about events in fall 2019: <http://whitmania.ucla.edu>.



### Sept. 28

Join Volunteer Day as UCLA gives back at 100 project sites across the city and around the globe. Projects for the annual day of service include sorting donations at shelters and beautifying parks.

### Oct. 6

Honor the university’s early years in downtown LA with CiLAvia: Heart of LA, Celebrating 100 Years of UCLA. Explore the 8-mile car-free route on a bike or by walking, jogging or skating.

### Nov. 3

Come to UCLA’s free science festival, one of the country’s largest and most popular, for telescope viewings, planetarium showings, science talks and physics and chemistry demonstrations.



**RANKINGS**



Graduate programs in the UCLA College ranked among the 2019 *U.S. News & World Report's* Top 10 include clinical psychology, psychology, English, math, sociology and history. Ranking among the Top 20 are political science, economics, earth sciences, chemistry, physics and biological sciences.



UCLA's rank in *Forbes'* 2019 best value colleges and universities in the U.S. Rankings focus on schools with the best financial outcomes, based on alumni earnings, net price, net student debt, school quality, timely graduation and access for low-income students.



**WATCH**

***Is higher education at a tipping point?***

College access, affordability and free speech were among the topics tackled this spring in a panel discussion at the National Press Club in Washington, D.C. Watch or listen to the discussion featuring, from left, Chancellor Gene

Block, Vice Provost for Enrollment Management Youlonda Copeland-Morgan, education law expert Elizabeth Meers and *Los Angeles Times* Washington bureau chief David Lauter: <https://ucla.in/2HKmEL1>







**“THE MOST IMPORTANT THING IS NOT HOW MUCH YOU KNOW; IT’S YOUR IMAGINATION. YOUR IMAGINATION IS FED AND IMPROVED WITH GOOD QUALITY DATA, BUT WITHOUT IMAGINATION, THE DATA ARE WASTED.”**

**— LOTHAR VON FALKENHAUSEN**

### Guggenheim Fellowship for College Professor

Thanks to his 2019 Guggenheim Fellowship, Lothar von Falkenhausen, professor of Chinese archaeology and art history at UCLA and head of the East Asian Laboratory at UCLA’s Cotsen Institute of Archaeology, plans to finish a monograph on the economy of continental East Asia during the eight centuries or so preceding the unification of China by the first emperor of Qin in 221 B.C.

“I’ve completed fieldwork in China studying early salt production and the general history of economic exchange, particularly how different areas exchange products. This book will be a series of case studies that will help us better understand the crucial centuries before unification through archaeology,” von Falkenhausen said.

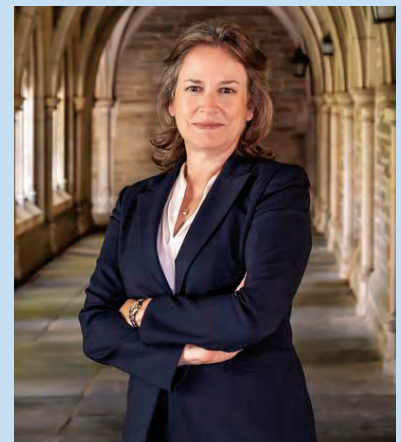


### RANKINGS

Money ranked UCLA the “Best College for Transfer Students.” A third of UCLA’s undergraduate population is made up of transfer students.

### New Executive Vice Chancellor and Provost

Emily A. Carter, dean of the School of Engineering and Applied Science at Princeton University, has been named UCLA’s new executive vice chancellor and provost, replacing Scott Waugh, who served in the role for more than 12 years. Carter was a member of the UCLA faculty for 16 years before going to Princeton, and with her return she will serve as the university’s chief academic officer, bringing broad vision and executive leadership to campuswide policy, planning, initiatives and operations.



# LAURE MURAT ROILS THE #METOO DEBATE IN FRANCE

By Peggy McInerny

## In a recent book, Director of the UCLA

Center for European and Russian Studies Laure Murat argues that #MeToo is the first serious challenge to patriarchy in modern times, and dismisses the current discussion of #MeToo in France as a polemical misdirection. Instead, she calls for a genuine debate on the issues of sexual harassment and assault that engages French young people, men and women, philosophers and intellectuals.

Born and raised in Paris, Murat is a well-known independent author and intellectual in France, but has lived and worked in the United States for the last 12 years, where she is a UCLA professor of French and Francophone studies. As a result, she has a unique perspective on #MeToo and its divergent receptions in the United States and France.

## Focusing on the issues

Her book, *Une révolution sexuelle? Réflexions sur l'après-Weinstein* [A Sexual

*Revolution? Reflections on the Weinstein Aftermath*], has fueled an ongoing rancorous debate about #MeToo in France, with Murat appearing on leading French television and radio shows to discuss the book, while also being interviewed by multiple French newspapers and online publications.

To give American readers an idea of the nature of the debate in France, some 100 well-known French women — including actress Catherine Deneuve — published an open letter in the left-leaning *Le Monde* that rejected the #MeToo movement and defended men's "freedom to pester."

The month before *Une révolution sexuelle?* was released, French journalist Eugénie Bastié of the conservative *Le Figaro* newspaper published *Le Porc Émissaire: Terreur ou contre-révolution?* [*Blame the Pig: Terror or Counter-Revolution?*], which decries the #MeToo movement for its supposed encouragement of victimization. Rightly or wrongly, one sentence in Bastié's book has become emblematic of the French critique of #MeToo: "Une main aux fesses n'a jamais tué personne, contrairement aux bonnes intentions qui pavent l'enfer des utopies [A hand on someone's ass never killed anyone, contrary to the good intentions that pave utopian hells]."

In fact, the views of Murat and Bastié were compared by Elisabeth Philippe of *Bibliobs* in an article titled *Où vont les femmes après #MeToo? Le match Eugénie Bastié – Laure Murat* [*Where are women headed after #MeToo? The Eugénie Bastié – Laure Murat Competition*].

*"I understand very well that this is uncomfortable, that there is resistance. At the same time, resistance is the real proof that there are innumerable dysfunctions. Let's look at them, let's discuss them. Because the only question worth asking is: How can we live together — for the better?"*

– Laure Murat





Laure Murat and her book, *Sexual Revolution? Reflections on the Weinstein Aftermath*

### Renewed dialogue for the young generation

Murat argues that polemics are preventing a real debate on the issues of sexual harassment and assault in France, as made clear in a translation of *En France, #MeToo est réduit à une caricature pour éviter le débat* [In France, #MeToo is being reduced to a caricature to avoid debate], a *Mediapart.fr* interview conducted by Marine Turchi:

Today, one could say that France is the country of the non-debate. I am struck by the intellectual void and the deliberate desire of the media to extinguish the issues by means of false polemics.

Instead of posing good questions, they rekindle the war of the sexes and clichés of "hysterical feminists" and "poor men," they invoke masculinity and the freedom to pester, they feel sorry for men who sexually harass women on the subway, they discuss the excesses and possible ambiguities of #MeToo while they

haven't begun to discuss the heart of the problem. They oppose X and Y, right and left, for and against. ...

Far from reanimating the war of the sexes, the #MeToo movement is, on the contrary, an exciting opportunity to understand and resolve the gulf between men and women, the gaps in consent, the sufferings of misunderstood sexuality, the logic of domination and abuse of power that poison personal and professional relationships. It's the promise of renewed dialogue for the young generation. I really like the proposal of Gloria Steinem: eroticize equality (in other words, not violence and oppression).

The #MeToo debate is far from over in either the United States or France. Murat's book offers new perspectives as the conversation continues.

**Visit** <https://ucla.in/2J6rUZy> to read this article with links to the letters, interviews and news coverage mentioned.

# CREATING ELECTRICITY FROM SNOWFALL AND MAKING HYDROGEN CARS AFFORDABLE

By Stuart Wolpert

**Professor Richard Kaner and researcher Maher El-Kady** have designed a series of remarkable devices. Their newest one creates electricity from falling snow. The first of its kind, this device is inexpensive, small, thin and flexible like a sheet of plastic.

“The device can work in remote areas because it provides its own power and does not need batteries,” said Kaner, the senior author who holds the Dr. Myung Ki Hong Endowed Chair in Materials Innovation. “It’s a very clever device — a weather station that can tell you how much snow is falling, the direction the snow is falling and the direction and speed of the wind.”

The researchers call it a snow-based triboelectric nanogenerator, or snow TENG.



The first-of-its-kind nanogenerator called snow TENG, attached to a hiking shoe.

Findings about the device are published in the journal *Nano Energy*.

The device generates charge through static electricity. Static electricity occurs when you rub fur and a piece of nylon together and create a spark, or when you rub your feet on a carpet and touch a doorknob.

“Static electricity occurs from the interaction of one material that captures electrons and another that gives up electrons,” said Kaner, who is also a distinguished professor of chemistry and biochemistry, and of materials science and engineering, and a member of the California NanoSystems Institute at UCLA. “You separate the charges and create electricity out of essentially nothing.”

Snow is positively charged and gives up electrons. Silicone — a synthetic rubber-like material that is composed of silicon atoms and oxygen atoms, combined with carbon, hydrogen and other elements — is negatively charged. When falling snow contacts the surface of silicone, that produces a charge that the device captures, creating electricity.

“Snow is already charged, so we thought, why not bring another material with the opposite charge and extract the charge to create electricity?” said El-Kady, assistant researcher of chemistry and biochemistry.

“After testing a large number of materials including aluminum foils and Teflon, we found that silicone produces more charge than any other material,” he said.

Approximately 30 percent of the Earth’s surface is covered by snow each winter,

El-Kady noted, during which time solar panels often fail to operate. The accumulation of snow reduces the amount of sunlight that reaches the solar array, limiting their power output and rendering them less effective. The new device could be integrated into solar panels to provide a continuous power supply when it snows.

The device can be used for monitoring winter sports, such as skiing, to more precisely assess and improve an athlete’s performance when running, walking or jumping, Kaner said. It could usher in a new generation of self-powered wearable devices for tracking athletes and their performances. It can also send signals, indicating whether a person is moving.

The research team used 3-D printing to design the device, which has a layer of silicone and an electrode to capture the charge. The team believes the device could be produced at low cost given “the ease of fabrication and the availability of silicone,” Kaner said.

## New device can create and store energy

Kaner, El-Kady and colleagues designed a device in 2017 that can use solar energy to inexpensively and efficiently create and store energy, which could be used to power electronic devices, and to create hydrogen fuel for eco-friendly cars.

The device could make hydrogen cars affordable for many more consumers because it produces hydrogen using nickel, iron and cobalt — elements that are much more abundant and less expensive than the platinum and





Richard Kaner, with Maher El-Kady, holding a replica of an energy storage and conversion device the pair developed

other precious metals that are currently used to produce hydrogen fuel.

“Hydrogen is a great fuel for vehicles: It is the cleanest fuel known, it’s cheap and it puts no pollutants into the air — just water,” Kaner said. “And this could dramatically lower the cost of hydrogen cars.”

The technology could be part of a solution for large cities that need ways to store surplus electricity from their electrical grids. “If you could convert electricity to hydrogen, you could store it indefinitely,” Kaner said.

Kaner is among the world’s most influential and highly cited scientific researchers. He has also been selected as the recipient of the American Institute of Chemists 2019 Chemical Pioneer Award, which honors chemists and chemical engineers who have made outstanding contributions that advance the science of chemistry or greatly impact the chemical profession.

Co-authors on the snow TENG work include Abdelsalam Ahmed, who conducted the research while completing his Ph.D. at the University of Toronto, and Islam Hassan and Ravi Selvaganapathy at Canada’s

McMaster University, as well as James Rusling, who is the Paul Krenicki professor of chemistry at the University of Connecticut, and his research team.

### More devices designed to solve pressing problems



Last year, Kaner and El-Kady published research on their design of the **first fire-retardant, self-extinguishing motion sensor and power generator**, which could be embedded in shoes or clothing worn by firefighters and others who work in harsh environments.



Kaner’s lab produced a separation **membrane that separates oil from water** and cleans up the debris left by oil fracking. The separation membrane is currently in more than 100 oil installations worldwide. Kaner conducted this work with Eric Hoek, professor of civil and environmental engineering.

# THE STONE FACES AND HUMAN PROBLEMS ON EASTER ISLAND

By Jessica Wolf

## In 1981, archaeology graduate student

Jo Anne Van Tilburg first set foot on the island of Rapa Nui, commonly called Easter Island, eager to further her interest in rock art by studying the iconic stone heads that enigmatically survey the landscape.

At the time, Van Tilburg was one of just a few thousand people who would visit Rapa Nui each year. Although the island remains one of the most remote inhabited islands in the world, a surge in visitors has placed its delicate ecosystem and archaeological treasures in jeopardy.

“When I went to Easter Island for the first time in ’81, the number of people who visited

per year was about 2,500,” said Van Tilburg, director of the Easter Island Statue Project, the longest collaborative artifact inventory ever conducted on the Polynesian island that’s part of Chile. “As of last year the number of tourists who arrived was 150,000.”

Journalist Anderson Cooper interviewed Van Tilburg on the island for a segment that aired Easter Sunday on CBS’ *60 Minutes*. Cooper spoke with Van Tilburg about efforts to preserve the moai (pronounced MO-eye) — the monolithic stone statues that were carved and placed on the island from around 1100 to 1400 and whose stoic faces have fascinated the world for decades. In 1995,



Jo Anne Van Tilburg, right, and Cristián Arévalo Pakarati



Excavation of Moai 156 (left) and 157 show visible difference in color and texture, and thus in preservation, due to soil and depth coverage.

UNESCO named Easter Island a World Heritage Site, with much of the island protected within Rapa Nui National Park.

Van Tilburg, who is research associate at the UCLA Cotsen Institute of Archaeology and director of UCLA’s Rock Art Archive since 1997, was the first archaeologist since the 1950s to obtain permission to excavate the moai, granted from Chile’s National Council of Monuments and the Rapa Nui National Park, with the Rapa Nui community and in collaboration with the National Center of Conservation and Restoration, Santiago de Chile.

She has spent nearly four decades listening, learning, establishing connections, making covenants with the elders of Rapanui society and reporting extensively on her findings. Major funding has been provided





Anderson Cooper of 60 Minutes interviews Van Tilburg.

by the Archaeological Institute of America Site Preservation Fund.

"I think my patience and diligence were rewarded," she said. "They saw me all those years getting really dirty doing the work."

### Bringing together research and teaching

Van Tilburg credits the sustained support of UCLA's Cotsen Institute as critical to her work on the island. She regularly includes both UCLA undergraduates from a variety of academic disciplines and passionate volunteers in the hands-on work on Rapa Nui.

Van Tilburg, who received her doctorate in archaeology from UCLA in 1989, is working on a book project that will harness her massive archive as an academic atlas of the island. She used the proceeds of a previous book to invest in local businesses, the Mana Gallery and Mana Gallery Press, both of which highlight indigenous artists. She also helped the local community rediscover their canoe-making history through the 1995 creation of the Rapa Nui Outrigger Club.

Her co-director on the Easter Island Statue Project, Cristián Arévalo Pakarati, is Rapanui and a graphic artist by trade. Van Tilburg exclusively employs islanders for her excavation work. She's traveled the world helping catalog items from the island that are now housed in museums like the Smithsonian in Washington, D.C., and the British Museum in London. Van Tilburg does this to assist repatriation efforts.

### Culture and environment at risk

Her work is important to the 5,700 residents of the island, who also are coping with increasing waves of tourists into their fragile ecosystem, Van Tilburg said. Only in the last decade or so have they been given governance of the national park where the moai are located.

"But by Rapa Nui standards, on an island where electricity is provided by a generator, water is precious and depleted, and all the infrastructure is stressed, 150,000 annual visitors is a mob," she said.

What's more disheartening are travelers who ignore the rules and climb on the moai, trample preserved spaces and sit on top of graves, all in service of getting a photo of themselves picking the nose of an ancient artifact, Van Tilburg said.

### Hierarchy and inequity in Rapanui society

Van Tilburg's original impetus behind studying the moai is rooted in her curiosity about migration, marginalized people and how societies rise and fall.

Rapanui society was traditionally hierarchical, led by a class of people who believed themselves God-appointed elites. These leaders dictated where the lower classes could live and how they would work to provide food for the elites and the population at large. The ruling class also determined how and when the moai – used as the backdrop for exchange and ceremony – would be built.

"This inherently institutionalized religious hierarchy produced an inequitable society," Van Tilburg said. "They were very successful in the sense that their population grew. But they were unsuccessful at understanding that unless they managed what they had better, and more fairly, that there was no future."

Population growth and rampant inequity in a fragile environment eventually led to wrenching societal changes, she said. Internal collapse (as outlined in UCLA professor Jared Diamond's book *Collapse*), along with colonization and slave-trading in the 1800s, caused the population of Rapa Nui to drop to just 111 in the 1870s.

As an anthropologist, Van Tilburg is concerned with equity.

"I'm interested in asking why we keep replicating societies in which people are not equal, because in doing so, we initiate a crisis," she said. "Inequity is at the heart of our human problems."



The intricate rock art on the back of Moai 157

# EARLY GRADUATION WITHIN REACH FOR MOST BRUINS

College offers pathways for students to graduate in less than four years

By Robin Migdol

## To her surprise, Qiyuan (Grace) Miao

realized during her sophomore year that she could graduate a year early, allowing her to begin graduate school ahead of schedule.

Miao is one of many Bruins who choose to complete their undergraduate degrees in less than the traditional four years. Although on different academic paths, these students all share a common message: With good planning and by taking advantage of UCLA programs designed to reduce time to degree, almost anyone can graduate early.

Miao, who graduated in June, pointed to several opportunities at UCLA that enabled her to get ahead on her coursework and finish her communication degree in three years while still enjoying a full undergraduate experience.

## Opportunities start freshman year

UCLA offers two intensive programs to introduce incoming students to campus and academic life: the Freshman Transfer Summer Program in the Academic Advancement Program, for students from underrepresented populations, and the College Summer Institute (CSI). Students in both programs take courses that fulfill graduation requirements, giving them a head start before their first fall quarter even begins.

CSI is where Miao first met with Brian Henry, an academic adviser who helped her map out her academic path — something all undergraduates are encouraged to do at least once a year. In advising sessions, students discuss their academic, personal and career goals and learn about opportunities to enrich their university experience. Academic counselors can also advise students on effective ways to maximize their time to degree if their goal is to graduate early.

Another way Miao optimized her time at UCLA was by taking a Freshman Cluster course, “Frontiers of Aging.” These are year-long general education courses offered on topics such as “Evolution of the Cosmos and Life” and “History of Modern Thought.” Each cluster, over the course of a year, satisfies four general education requirements and the Writing II requirement.

“Clusters are a great way to fulfill a lot of requirements very quickly,” Miao said.

## UC’s study-abroad intensives

Graduating early doesn’t require students to sacrifice meaningful experiences outside of the classroom.



Shrey Kakkar





Students on a study abroad program in Scotland

Michael Le, who graduated with a bachelor’s degree in neuroscience in winter 2019, one quarter early, was still able to study abroad one summer at the University of Glasgow, where UC offers an intensive three-course physics program over two months.

“I completed all three courses in a mere eight weeks, something that would [normally] take 30 weeks,” Le said. “This is an excellent way to get your study abroad ‘fix’ in and be efficient with course planning.”

Shrey Kakkar, a junior majoring in computer science, is on track to graduate one or two quarters early and said many of his peers could do the same, even in a demanding major like computer science. He credits his fast track to his commitment to enroll in four classes every quarter, plus one summer class. And he still has had time for other activities such as doing research and working for a startup.

**Fitting more into four years**

Graduating early isn’t every student’s goal. For some, like Mac Casey, maximizing time to degree meant packing a lot into the traditional four years: He was in the rigorous College Honors program, studied abroad for a year, and graduated in 2016 with degrees in both political science and business economics.

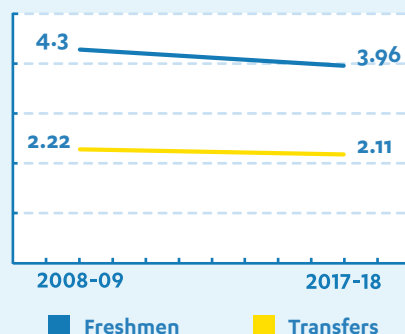
“The faculty at UCLA are excellent, and I loved taking courses – the more courses the better,” Casey said. “I really wanted to learn as much as I could and interact with great faculty and researchers.”

Casey said that accomplishing so much in four years is not out of reach for most students. By choosing courses strategically and enlisting the expertise of his honors academic counselor, he was able to complete all his major requirements and stay on track.

Dean and Vice Provost of Undergraduate Education Patricia Turner said that although UCLA already does an excellent job of graduating students in a timely manner, she will continue to work with her faculty colleagues to develop new opportunities to allow students to graduate on time or early while still having a personalized, fully engaged undergraduate experience.

“A student’s undergraduate years are the perfect time to discover what they’re most passionate about,” Turner said. “Students who take advantage of credit-earning opportunities such as service learning, civic engagement and entrepreneurship often find themselves on career paths they otherwise might not have discovered. And because of the way these programs are designed, students can still graduate in four years or less.”

**YEARS TO GRADUATE (all UCLA students)**



Source: UCLA Office of Academic Planning and Budget

**LEARN MORE:**

**Read** more about the College Summer Institute at <https://www.summer.ucla.edu/newUCLAstudents#CSI>.

**Watch** a video about the Cluster Program at <http://www.uei.ucla.edu/academic-programs/ucla-cluster-program/>.

**Browse** UC Education Abroad Programs at <https://ieo.ucla.edu/uceap/>.





# THE FUTURE OF...

UCLA life sciences researchers are busy making breakthroughs large and small that are transforming our understanding of life as we know it. This vital science research is leading to real-world solutions for challenges from human health to biodiversity.

## THE FUTURE OF AGING

Although people often worry about their memory as they get older, aging is not all downhill.

**Alan Castel** in the Department of Psychology has found that despite some memory decline, many healthy older adults can selectively remember important information, such as remembering to take medications or pack a passport for a trip. And older adults can improve their mood by choosing to focus on positive emotional events. In addition, wisdom and creativity can blossom in older age, allowing people to come up with novel and innovative solutions to all kinds of problems. Castel's research shows that curiosity allows the mature brain to focus on what is interesting, leading to memory benefits for what we find most important in life. With more new insights into about how memory works, he plans to improve and develop new strategies and selective attention techniques so that people can remember what is most important (and choose to forget the rest!).

Meanwhile, the common fruit fly is helping unlock one of the secrets of the fountain of youth.

**David Walker** in the Department of Integrative Biology and Physiology uses the genetics of the insect to better understand the molecular and cellular mechanisms that cause age-related deterioration. In a study on middle-aged fruit flies, Walker and colleagues developed a "cellular time machine" that helps to remove toxic, damaged mitochondria from aged cells. The approach focuses on mitochondria, the tiny power generators within cells that control the cells' energy levels and determine when they live and die. Mitochondria often become damaged as people age, accumulating in the brain, muscles and other organs. When cells can't eliminate the damaged mitochondria, those mitochondria can become toxic and contribute to a range of age-related diseases. Walker's research could lead to drugs that delay the onset and progression of human age-related diseases such as Parkinson's, Alzheimer's, cancer, stroke and cardiovascular disease.





Many of the fruits and vegetables we eat come from plants and crops that depend on bees for pollination, an example of nature's interdependence that is vital to ecosystem health and stability.

**Luke Nikolov** of the Department of Molecular, Cell and Developmental Biology is working to understand the developmental basis of nectar, a key factor in plant pollination. Plants display an elaborate array of color, form and scent to attract bees, but the sugary liquid is the ultimate reward. Plants produce nectar in secretory structures called nectaries. Using the latest gene editing technology, Nikolov and his students are identifying genes that control how and where the nectaries are built, and the mechanisms responsible for nectar formation and secretion. These findings will provide insights essential to agriculture and bee health, and could lead to new approaches to increase crop yield.



From overfishing to coral bleaching and ocean plastics, many marine threats have been detected too late to prevent lasting damage.

**Paul Barber** of the Department of Ecology and Evolutionary Biology and his students are helping revolutionize how we monitor changes to marine biodiversity caused by pollution and climate change. In the coral reefs of Indonesia, Barber and his collaborators place stacks of 12-inch plastic plates, which become colonized by everything from bacteria and bryozoans to corals and crabs. They then extract and sequence the DNA of these organisms to reconstruct complex marine communities in the search for individual species that are

early harbingers of environmental change. Along the California coast, Barber and his students are also reconstructing entire marine communities — but from just a few liters of seawater. This is possible because all marine animals, from humpback whales to garibaldi fish, leave behind DNA traces that can be extracted and sequenced to monitor local changes in marine ecosystems. This work is providing marine resource managers new tools to promote sustainability of imperiled marine ecosystems.



Modern civilization is molding life on Earth at an unprecedented scale and speed.

**Shane Campbell-Staton** in the Department of Ecology and Evolutionary Biology and his collaborators are studying the effects of civil conflict on the evolution of elephants in southern Africa. In the wake of the 15-year civil war in Mozambique, more than 90 percent of large mammals in some regions were killed. The elephant population in Gorongosa plummeted from thousands to mere hundreds as they were hunted for food and ivory. Of the female elephants who survived, half lacked their trademark tusks — a much higher number of tuskless females than normal. Using genome sequencing and studies of tooth development, Campbell-Staton is searching for the genes responsible for tusk loss. Researchers are also deploying

various tracking technologies and field observations to understand whether the loss of such a versatile tool may fundamentally impact the landscape and other species. Understanding such cascading impacts of conflict will inform conservation efforts as the Gorongosa ecosystem recovers from the war.



THE FUTURE OF BRAIN HEALTH >>

Post-traumatic stress disorder (PTSD) is rife in communities that are disproportionately plagued by conflict and violence.

**Lauren Ng** in the Department of Psychology researches the effectiveness of PTSD interventions in these locations, focusing on how individual, cultural and contextual differences influence treatment effectiveness for diverse patient populations. Although more than 80 percent of the world's population lives in low-and middle-income countries (LMICs), little of the research on treatments for mental disorders, including PTSD, has originated in those countries. Many current treatments have been developed and tested in fully resourced academic settings and do not translate well to under-resourced LMICs or rural American communities. Ng aims to increase access to treatment and reduce health disparities for communities previously overlooked in PTSD research. This will lead to innovative treatments and models of care — potentially delivered by peers, community members, lay providers and/or primary care providers — that are culturally grounded and available to all.





## THE FUTURE OF BRAIN HEALTH

### Current treatments for addiction are only modestly effective, and not all patients respond to them the same way.

**Lara Ray** in the Department of Psychology is developing more effective tailored treatment options to combat addiction using a clinical research approach that combines brain imaging, pharmacology and genetics. Her lab is conducting large-scale clinical trials to improve treatments for alcoholism and smoking cessation. In earlier studies, she found that genetic variation may predispose certain individuals to a more “rewarding” response to alcohol when they drink,

and that these drinkers respond favorably to a medication that blocks the rewarding effects of alcohol. Ray has also found that smokers who drink heavily are much more likely to lapse into smoking during a drinking episode. To curb the effects of alcohol on smoking urges, she has found that using a combination of medications for drinking and smoking is more effective than either medication alone, and superior to placebo.



### Depression will soon be the leading cause of global disease burden, afflicting 300 million people worldwide. Less than half of individuals receive treatment, and relapse is not uncommon.

Capitalizing on the latest advances in neuroscience and technology, **Michelle Craske** in the Department of Psychology is developing new treatments for anxiety and depression. She recently developed a new treatment for anhedonia, the inability to anticipate or experience pleasure, which is a symptom of anxiety and depression associated with high suicide risk. The treatment, which teaches skills of anticipating, savoring and learning

reward, has been shown to be more effective than standard psychological treatment. Next up is a thorough exploration of the neural mechanisms of this treatment, i.e., exactly how it works. Craske also leads the Innovative Treatment Network for the UCLA Depression Grand Challenge, which provides screening, tracking and treatment for depression and anxiety for UCLA students via smartphones, combined with in-person treatment for those in greatest need.



## THE FUTURE OF DISEASE

### Stem cell gene therapy offers new hope for treatments – and even cures – for a range of genetic conditions.

**Donald Kohn** in the Department of Microbiology, Immunology and Molecular Genetics is testing novel approaches to treating genetic diseases such as Sickle Cell Disease (SCD) and Severe Combined Immune Deficiency (SCID), also known as “bubble baby disease.” In these diseases, an inherited mutation in a single gene causes blood cells in bone marrow to malfunction. Today, more than 40 SCID babies are living infection-free thanks to a new approach developed in Kohn’s lab that doesn’t rely on a perfectly matched stem cell donor. Instead, the patient’s own stem cells are extracted, a normal copy of the relevant gene is added, or that gene is fixed, and these are transplanted back to the patient. These “self” transplants are safer since the patient’s cells are a perfect match. Based on the success of the SCID trial, a clinical trial for SCD will begin soon.

### The word “pandemic” conjures up fears of disease, contagion and global catastrophe, from the Black Death to HIV/AIDS to Ebola.

**Jamie Lloyd-Smith** in the Department of Ecology and Evolutionary Biology studies the conditions in which deadly viruses circulating in animal populations, such as avian influenza and Nipah, a bat-borne virus, can cross over and cause human pandemics. He builds mathematical and computer models, and integrates ideas and data across disciplines, from molecular biology to climate change. The result is new understanding of how ecological dynamics in wildlife populations, evolu-

tionary pressures on pathogens, and changes in human societies can combine to form the conditions for pandemics. He recently discovered that we’re all already protected against some avian influenza strains, with immunity that varies depending on our birth year and the first seasonal flu strain we caught. Lloyd-Smith’s work is providing new tools to prioritize pandemic threats, so we can spot the next big one before it strikes and take action to prevent it.



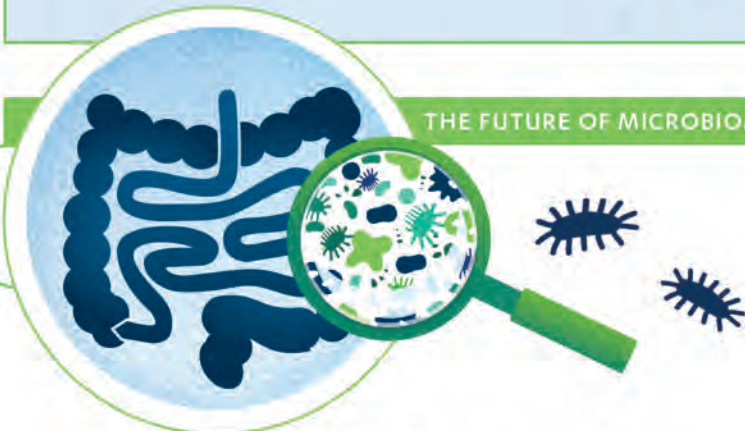
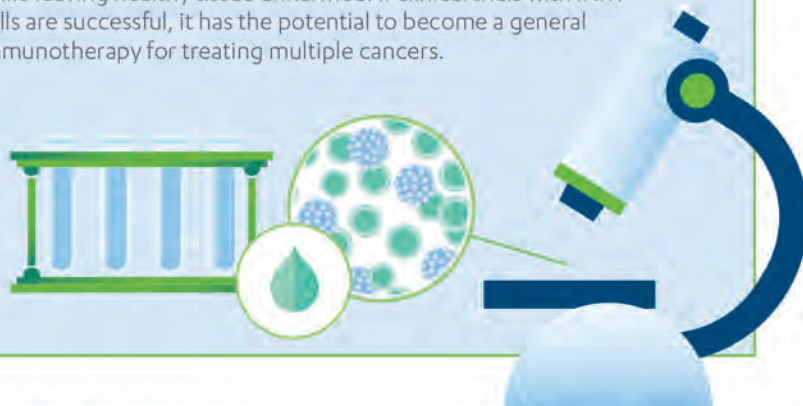
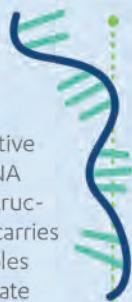


**Autism and other neurological disorders are poorly understood.**

This could soon change, thanks to **Xinshu (Grace) Xiao** in the Department of Integrative Biology and Physiology, who researches RNA abnormalities. While DNA contains the instructions for life, RNA acts as a messenger that carries out these instructions and plays essential roles in health. The same piece of DNA can generate multiple versions of RNA through transcription and RNA processing, possibly leading to different protein sequences. Xiao and her collaborators recently discovered differences in the brains of autism patients involving RNA editing, in which genetic material is normal, but modifications in RNA alter nucleotides. The study identified two proteins, FMRP and FXR1P, which regulate abnormal RNA editing in autism. FMRP is known to be a critical protein to autism pathogenesis, and mutations in FMRP cause Fragile-X syndrome, a disorder closely related to autism. Xiao hopes to reveal new insights into autism mechanisms and causes, which could lead to new treatments for this and other neurological disorders.

**Current cancer therapies are often ineffective, toxic to the patient, and do not prevent relapse. Immunotherapy has shown great promise as part of a new generation of cancer medicine.**

**Lili Yang** in the Department of Microbiology, Immunology and Molecular Genetics is developing novel immunotherapies to fight cancer with the body's own immune cells, specifically invariant natural killer T (iNKT) cells. Our immune system comprises a small, powerful network of blood cells that survey, detect and destroy harmful invasions by germs or viruses. Some cancers can evade immune system detection because it's the body's own cells that have turned malignant through rapid, uncontrolled division. Yang aims to develop gene therapies that engineer patient immune systems to recognize and kill cancer cells while leaving healthy tissue unharmed. If clinical trials with iNKT cells are successful, it has the potential to become a general immunotherapy for treating multiple cancers.



**Little is known about the trillions of native intestinal microorganisms inhabiting our bodies, collectively called gut microbiota.**

**Elaine Hsiao** in the Department of Integrative Biology and Physiology studies interactions among the microbiome, brain and behavior, and their potential links to neurological disorders such as autism, depression and Parkinson's, as well as social, communicative, emotional and anxiety-like behaviors. She focuses on specific microbes that regulate neurochemicals; influence immune cells in the brain; and interact with environmental factors, such as diet, medications and stress, which can predispose people to neurological

diseases. Hsiao demonstrated strong links between changes in gut microbiota and changes in behaviors relevant to anxiety, depression and autism. She also identified specific gut bacteria that play an essential role in the anti-seizure effects of a high-fat, low-carbohydrate ketogenic diet and was the first to establish a causal link between seizure susceptibility and gut microbiota. Hsiao's research could reveal new treatments for neurological and neurodevelopmental diseases.

**With up to a billion new mutations of microbes entering our gut microbiome daily, bacterial genomes inside the body can evolve rapidly. This is both an opportunity (e.g., enabling digestion of new foods) and a challenge (e.g., the evolution of drug resistance).**

**Nandita Garud** in the Department of Ecology and Evolutionary Biology uses population genetics to understand how human gut microbiome evolves. Garud and her collaborators recently quantified the evolutionary dynamics of roughly 40 prevalent species of gut bacteria. They found that gut bacteria can evolve in humans in the space of just six months, but that over our lifetimes, the bacteria inside us are completely replaced. These results suggest that gut bacteria can evolve on time scales relevant to our health, but that they do not become so personalized that they cannot be replaced. This work could pave the way for a range of therapeutic applications, including predicting antibiotic drug resistance in gut microbiota and developing fecal microbiome transplants that can effectively cure diseases.

Learn more at [www.college.ucla.edu/college-magazine/](http://www.college.ucla.edu/college-magazine/)



## INSPIRING TOMORROW'S SCIENTISTS

By Margaret MacDonald

**Scholarships, research opportunities and quality mentoring can make all the difference for aspiring scientists at a top public research university. Bolstered by philanthropy, two life sciences programs are serving up this powerful combination to UCLA's diverse, motivated and high-achieving students: the Four-Year Life Sciences Scholars Program and COMPASS (Creating Opportunities for Mentorship and Providing Access for Students in the Sciences).**

Incoming students planning to major in the biosciences can apply for the Four-Year Life Sciences Scholars Program, and students

at all class levels can receive stipends from COMPASS for either summer or part-time research positions.

In both programs, students benefit from hands-on lab experience and mentorship by UCLA's world-class faculty. Such mentoring relationships, combined with financial support and academic advising, help students navigate paths to science careers, and are particularly relevant for students from groups traditionally underrepresented in the sciences, first-generation college students, and those with socioeconomic hardships or a history of significant life challenges.



Ira Ziering (left) and Godeleine de Rosamel (right) pictured with Cameron Smith, recipient of their four-year scholarship





Irene Romero and COMPASS student Amara Pang

**Four-Year Life Sciences Scholars Program (with participation in the highly selective Howard Hughes Medical Institute Pathways to Success program)**

- Full scholarships for highly talented students interested in majoring in the biosciences, with a focus on students from groups that are historically underrepresented in the sciences
- Powerful recruiting incentive to enroll top students admitted to UCLA
- Mentored research experience
- Academic advising and support

For many of the donors who support these programs, the motivation to give is closely tied to their own stories.

Irene Romero, a veteran entertainment banker, community leader and COMPASS supporter, knows firsthand the struggles many students face.

"I was raised in poverty and against all odds built a career as a Hispanic woman in banking," said Romero, a member of the UCLA Life Sciences Centennial Campaign Board who serves on the boards of nonprofits including the California Science Center and the Ella Fitzgerald Foundation. "I wish I'd had a resource like COMPASS when I was starting out."

### Opening up the American dream

Ira Ziering, who serves on the boards of several nonprofits including TreePeople and the Natural Resources Defense Council Action Fund, said he donated to the Four-Year Life Sciences Scholars

Program because he wants to ensure that the benefits of a world-class education remain widely accessible to talented students of all backgrounds.

"My father was a German refugee who came to the U.S. after World War II without a lot of money and nonetheless was able to earn a doctorate in physics," Ziering said. "That opened up the American dream for him, and I want to do the same for science students at UCLA."

Ziering said he is excited to see what the future holds for Cameron Smith, a junior majoring in human biology and society and the recipient of the scholarship Ziering funded.

"He is extraordinary, not just academically but in the exemplary way he leads his life," Ziering said. "I feel lucky that my family and I have gotten to know Cameron and his family."

Pamela Buffett, president of the Rebecca Susan Buffett Foundation, supports the Four-Year Life Sciences Scholars program and a variety of other

**COMPASS (Creating Opportunities for Mentorship and Providing Access for Students in the Sciences)**

- Summer and part-time research stipends
- Mentoring and academic advising
- Internship opportunities
- Especially relevant to students from groups that are historically underrepresented in the sciences, first-generation college students, and those with socioeconomic hardships or a history of significant life challenges
- Since 2016, number of donors has doubled and amount donated has increased by 500%



**Pamela Buffett and four-year scholarship recipient Kalaya Hill**



**Paul Sehdeva**

areas at UCLA. She said she's convinced of the importance of the program, describing it as a "guiding light" for college students, like the recipient of the scholarship she funded, psychobiology major Kalaya Hill.

"Kalaya is extremely bright and she's taking advantage of every opportunity," Buffett said. "She's a lovely person, and I'm truly grateful to know her."

**Honoring family and paying it forward**

UCLA alumnus Paul Sehdeva chose to support COMPASS to honor his parents, both physicians who immigrated to the United States as students nearly 60 years ago and encountered similar obstacles to

those that today's students face, and as a way to give back to the university where he earned his physiology degree. He, too, is impressed by the students he's met.

"Listening to COMPASS students' stories of perseverance, focus and dedication inspires me to play a small role in helping them achieve their dreams," said Sehdeva, managing principal of PJX2 Development Group, a real estate acquisition, development and property management firm.

Monica Salinas, former UCLA Foundation board member and past president of Women & Philanthropy, said that supporting the four-year life sciences scholarship was a perfect fit with her commitment to helping

*"Listening to COMPASS students' stories of perseverance, focus and dedication inspires me to play a small role in helping them achieve their dreams."*

– Paul Sehdeva



underrepresented, talented Latino students reach their academic goals.

Salinas, originally from Mexico City, has practiced as a family therapist in Los Angeles for the past 30 years and has led cultural and academic workshops for local Latino parents. She has given to a number of areas on campus including the Fielding School of Public Health, the International Institute and the Luskin School of Public Affairs.

All of these donors, and many others, have been inspired by the vision of Victoria Sork, an evolutionary biologist and, in 2010, the first woman to be appointed dean of UCLA Life Sciences. She has enlisted a growing community of faculty mentors and leaders,

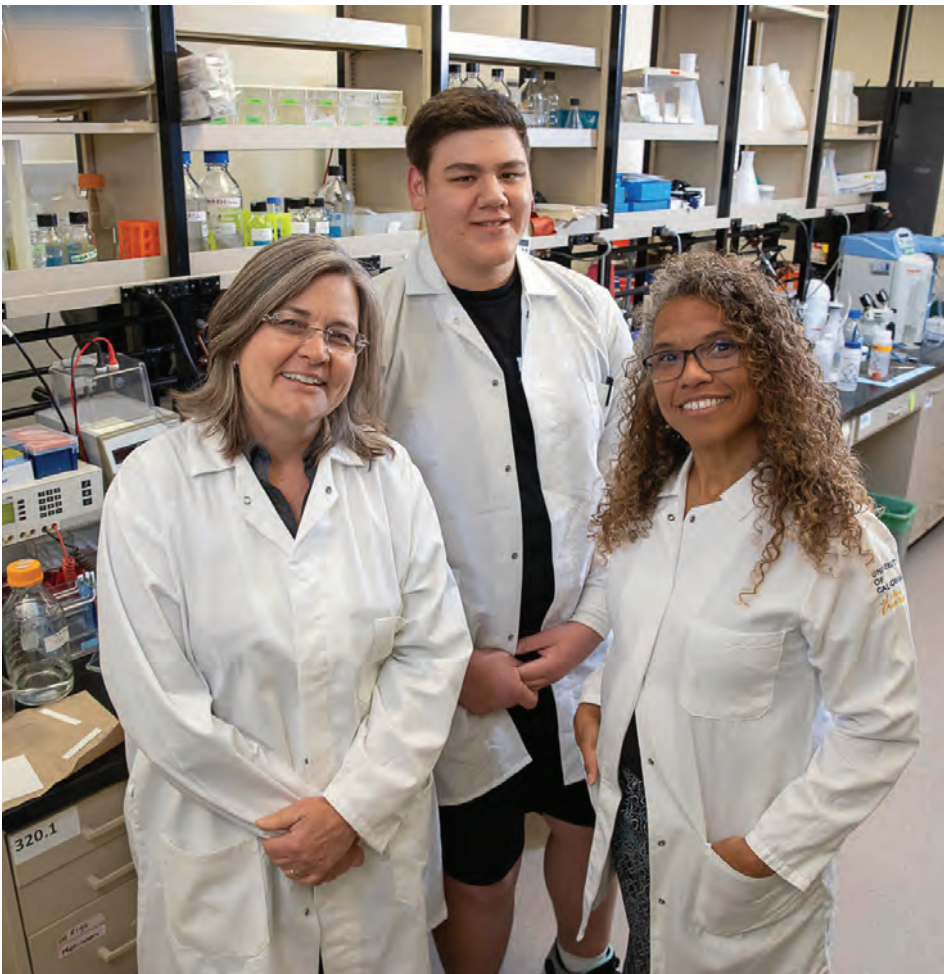
all accomplished scientists, to encourage UCLA students from all walks of life to pursue careers in the sciences and tackle the world's most pressing challenges.

"We are incredibly grateful to our donors," Sork said. "As a result of their generosity, we are expanding the pipeline of scientific talent, strengthening research in science and medicine, and empowering all UCLA students to seize opportunities to excel and become leaders."

**To learn more**, please contact Caroline Gallaher, director of development, UCLA Life Sciences, at (310) 206-6383 or [cgallaher@support.ucla.edu](mailto:cgallaher@support.ucla.edu).



**Monica Salinas**



**HHMI Pathways Program director and biology professor Tracy Johnson, holder of the Keith and Cecilia Terasaki Presidential Endowed Chair in the Division of Life Sciences**

**From Left: COMPASS student José Gonzalez flanked by COMPASS co-directors Megan McEvoy (left), professor in the Department of Microbiology, Immunology & Molecular Genetics; and Gina Poe (right), professor in the Department of Integrative Biology and Physiology and in the Department of Psychiatry.**



# HONORING THE CENTENNIAL GRADUATING CLASS

*Alumni speakers shared remarks at commencement ceremonies  
across campus as UCLA celebrated its centennial.*







**COLLEGE CEREMONY**

**ANNA LEE FISHER '71, M.D. '76, M.A. '87**

**Dr. Anna Lee Fisher was selected by NASA in 1978 to be among the agency's first female astronauts. In 1983, just two weeks before delivering her daughter, she was assigned to her flight on the space shuttle Discovery, and she embarked on mission STS-51A in 1984 when her daughter was just 14 months old — making her the first mother in space.**

She has served NASA in several capacities throughout her career. In addition to serving on space missions, Fisher was the chief of the Astronaut Office's Space Station branch, where she had a significant role in building the foundation for the International Space Station. She also worked in the mission control center as a lead communicator to the space station.

Before retiring in 2017, Fisher was a management astronaut working on display development for NASA's pioneering Orion spacecraft, which will take astronauts farther into the solar system than they have ever gone.

Prior to orbiting the Earth, Fisher pushed into new frontiers at UCLA. She earned a bachelor's degree in chemistry in 1971, an M.D. in 1976, and a master's in chemistry in 1987.

***"Anna Fisher is an extraordinary illustration of what one person can achieve with determination, focus and hard work. She is an example to all Bruins that one can truly reach beyond the stars. I know our graduates and their guests will be inspired by her wonderful journey as we celebrate all that UCLA has accomplished over the past 100 years and look forward to all that is yet to come."***

— PATRICIA TURNER, SENIOR DEAN OF THE UCLA COLLEGE

**MEET THE DISTINGUISHED ALUMNI SPEAKERS  
FOR THE DEPARTMENT CEREMONIES >>**





THE ACCOMPLISHMENTS OF THE CLASS OF 2019 WERE CELEBRATED IN CEREMONIES HELD JUNE 14-16, 2019.

ANTHROPOLOGY



**ROBERT LEMELSON, PH.D. '99**

Robert Lemelson is a psychological and visual anthropologist at UCLA specializing in transcultural psychiatry; Southeast Asia, particularly Indonesia; and psychological and medical anthropology. He has directed and produced more than a dozen ethnographic films on a wide range of topics, including genocide, mental illness, gender-based violence, kinship, ritual and related topics.

He is the author of numerous journal articles and book chapters. Lemelson is co-editor of *Understanding Trauma, Integrating Biological, Clinical and Cultural Perspectives* and *Re-Visioning Psychiatry: Cultural Phenomenology, Critical Neuroscience and Global Mental Health*, both published by Cambridge University Press. In 2017 his monograph *Afflictions: Steps Toward a Visual Psychological Anthropology* was published by Palgrave Press. He is working on another volume for Palgrave Press on trauma, film and culture, which will be published in 2020. Lemelson is also the founder and president of the Foundation for Psychocultural Research, which supports research and training in the social and neurosciences.

*“As one of the top research universities in the world, UCLA offers unparalleled opportunities to learn and share research and interests across multiple disciplines, interest groups and centers. UCLA faculty and students are among the most open and collegial, meaning discussions and collaboration are friendly, supportive and deeply engaged, while maintaining an inquisitive and critical stance. This makes participating in the different communities on campus to learn, share knowledge and present one’s research deeply rewarding.”*

**30,000** ESTIMATED NUMBER OF GUESTS ON CAMPUS JUNE 14, THE BUSIEST DAY FOR COMMENCEMENT EVENTS

ALL COMMENCEMENT PHOTOS: UCLA/MATT HARBICHT



## CHEMISTRY AND BIOCHEMISTRY



### MIKE VARNEY '80

Mike Varney is an executive vice president at Genentech, where he heads Genentech Research and Early Development (gRED). He is responsible for all aspects of gRED innovation, drug discovery and development. He is also a member of the Roche corporate executive committee.

In 1987, Varney was one of the original 15 employees at Agouron, a San Diego-based biotech company. He and his team pioneered the process of protein structure-based drug design. From these efforts came Viracept, an HIV protease inhibitor, and a number of anti-cancer agents, including Xalkori, Inlyta and Rucaparib.

Varney was recruited by Genentech in 2005 to take the company beyond biologics and create a small molecule drug discovery capability. Within 10 years, his group had produced almost 40 percent of gRED's development portfolio, including anti-cancer agents Erivedge and Cotellic.

**"Chemistry is fun!"**

## COMMUNICATION



### DINO BARAJAS '90

Dino Barajas is a partner with Akin Gump, whose practice focuses on domestic and international project development and finance, with particular emphasis on Latin American infrastructure projects, debt financing and mergers and acquisitions. He has worked on transactions throughout Central and South America, the Caribbean and the United States. Barajas was recognized as one of "10 Innovative Lawyers in the US" by the *Financial Times* in 2010. He was named "Attorney of the Year (Energy)" in 2004 by *California Lawyer Magazine*.

As a student at UCLA, Barajas was a UCLA Distinguished Scholar in 1989 and named Outstanding Graduating Senior in 1990. He had the honor of serving as the communication studies student commencement speaker. He and his wife live in Pasadena with their daughter, currently a sophomore at UCLA.

**"UCLA is a part of a larger family, spanning interconnected academic, social, political and personal circles. It's a place that builds relationships and shares knowledge, ultimately giving those who come here the ability to better our society and serve others."**

## EARTH, PLANETARY, AND SPACE SCIENCES



### JOHN L. PHILLIPS M.S. '84, PH.D. '87

John L. Phillips received a B.S. in mathematics from the U.S. Naval Academy and an M.S. and Ph.D. in space physics from UCLA. He served in the U.S. Navy as a pilot from 1972 to 1982. After completing graduate school, Phillips worked at Los Alamos National Laboratory for nine years. He was principal investigator for the plasma experiment on the Ulysses spacecraft as

it transited the solar polar regions. He's authored more than 150 scientific publications.

In 1996, Phillips was selected as a NASA astronaut. He made three space flights: in 2001 aboard STS-100, shuttle Endeavour; in 2005 on a Soyuz spacecraft for six months aboard the International Space Station; and in 2009 on STS-119, shuttle Discovery. He has served as a flight engineer on three spacecraft types: Shuttle, Soyuz and ISS. Phillips retired from NASA in 2011, and now lives in Idaho.

**"After 10 years as a Navy pilot, with no exposure to graduate study or contemporary research, I was a complete novice in the academic world. The folks at UCLA introduced me to scientific research, helped me start a career, and set me up to land the job I really wanted – NASA astronaut."**



## ECOLOGY AND EVOLUTIONARY BIOLOGY



### ELIZABETH DEVINE '83

Elizabeth Devine is an accomplished forensic scientist, crime scene reconstruction expert, autism awareness advocate and television writer/executive producer best known for her work on the *CSI: Crime Scene Investigation* franchise.

Devine joined the L.A. County Sheriff's Department as a criminalist in 1985, beginning a 15-year career that included work on some of L.A.'s highest profile murders. She ultimately led the Crime Scene Unit and co-supervised the DNA lab. She received the Sheriff Department's Meritorious Service Medal and was honored by the Los Angeles County Board of Supervisors for her work.

In 2000, Devine became a technical consultant on the first season of *CSI: Crime Scene Investigation*. She left the Sheriff's Department at the end of the season and joined *CSI* as a full-time writer and producer. She wrote and produced episodes for the original *CSI* and *CSI: Miami* and has written or co-written 42 episodes of television. Her latest work is for the Netflix drama *Unbelievable*, due for release in fall 2019.

*"I learned many things at UCLA, inside and outside the lecture halls. I learned that failures could be precursors to success. That you can learn something from everyone you encounter. I discovered that the only person who can truly hold you to a set of standards is yourself. My UCLA education is, and will always be, one of my greatest achievements. To me, being a Bruin means to embrace diversity, applaud innovation, strive for lifelong learning, and mentor and encourage those who come after you."*

8,300

BACHELOR'S DEGREES AWARDED  
BY UCLA IN 2018-2019



## ECONOMICS



### LLOYD GREIF '77

The son of Holocaust survivors, Lloyd Greif paid his way through UCLA and USC by working at Ralphs Grocery Co. After earning a bachelor's degree and an MBA, he worked at Touche Ross & Co. and Sutro & Co. while attending Loyola Law School in the evening. His meteoric rise in the world of investment banking culminated in being named the youngest vice chairman and head of investment banking in the 130-year

history of Sutro. In 1992, he left to launch Greif & Co., now a global leader in mergers and acquisitions and corporate financing advisory services.

An engaged civic leader, Greif has served as chairman of the board of the Los Angeles Economic Development Corporation, the Los Angeles Police Foundation and the City of Los Angeles' Business Tax Advisory Committee. He is also a member of the board of directors of the California Chamber of Commerce and the National Museum of American Illustration. He has been married to his law school sweetheart Renée for the past 33 years. They have three children, Nicholas, Lauren and Benjamin.

*"I had the good fortune to participate in an experimental, interdisciplinary course of study involving UCLA's schools of architecture, engineering and business, the Creative Problem Solving Program. It provided me with a unique perspective, skill set and grounding that has proven invaluable, not only in obtaining the MBA and J.D. degrees that were to follow, but also in the success I've achieved as a management consultant, investment banker and entrepreneur. And let's not forget the great family time and alumni bonding at Bruin Woods!"*





**ENGLISH**



**FRANK SPOTNITZ '82**

**Award-winning writer and producer**  
Frank Spotnitz began his career with the TV show *The X-Files*. He is the founder and chief executive of Big Light Productions, a London- and Paris-based production company that specializes in international television series, including drama, comedy and documentaries.

Most recently, Spotnitz created and executive-produced *The Man in the High Castle*, based on the classic Philip K. Dick novel, for Amazon; *Ransom* for CBS; and three series for Netflix – *Medici: Masters of Florence*, starring Richard Madden and Dustin Hoffman; *Medici: The Magnificent*, with Daniel Sharman and Sean Bean; and the comedy-drama *The Indian Detective*, featuring internationally known comedian Russell Peters. Other credits include *Hunted*, *Strike Back*, *Night Stalker*, Michael Mann's *Robbery Homicide Division*, *The Lone Gunmen*, *Harsh Realm*, *Millennium* and both *X-Files* feature films. For his work on *The X-Files*, Spotnitz shared three Golden Globes for Best Drama Series and a Peabody Award. He was also nominated for an Emmy Award for Writing and was nominated three times for Outstanding Drama Series.

*“When I think of UCLA, I think of long nights working in Kerckhoff Hall, friendships that have lasted a lifetime and a whole world of intellectual possibilities opening up to me for the first time. My years there are deeply ingrained in who I am, and even now I carry UCLA with me wherever I go.”*

**HISTORY**



**LAUREN M. DOLIVA '69**

**Lauren M. Doliva has worked with executive search firm Heidrick & Struggles** for the past 35 years, where she created and led a number of initiatives, including the E-Business Practice. Currently a partner emeritus, she serves as program dean for the women’s leadership development program, “Accelerating Women’s Excellence.” She previously spent three years at Lucasfilm Ltd., working with the

corporate entity as well as its emerging divisions. She holds a Ph.D. in counseling psychology from UC Berkeley and an M.A. in teaching from Harvard University.

Doliva has been recognized by several publications, including *The Global 200 Executive Recruiters*, and was named a top-100 recruiter by *Businessweek*. Seven years in a row, the *San Francisco Business Times* honored Doliva as one of the “Most Influential Women in Business,” culminating in her recognition as a “Forever Influential.” She has served on the boards of Odwalla, The Oxbow School, the Health Technology Center, and the advisory board for the Silicon Valley Association for Startup Entrepreneurs.

*“In the late '60s, UCLA was a vibrant, exciting place to be. As a history major, I learned the importance of being curious, embracing the complexities of context and having the courage to act. It was a moment to exercise that learning, as diverse opinions and points of view were literally being demonstrated across the campus. Fifty years later, I’ve found it an even more stimulating environment. Lucky are the students who get to experience the scale and scope of this small city that thrives on continuous learning from its stellar faculty and from each other.”*

**13,500** | APPROXIMATE NUMBER OF BACHELOR’S, MASTER’S, DOCTORAL AND PROFESSIONAL DEGREES UCLA EXPECTS TO CONFER IN 2018–2019

## MATHEMATICS



### **VLAD TENEV, M.S. '10**

Vlad Tenev is the co-CEO of Robinhood, one of the country's fastest growing brokerages, which he co-founded with Baiju Bhatt in 2013 to democratize America's financial system. Tenev currently oversees the engineering and business development teams for Robinhood, which now reaches millions of customers nationwide. The company is backed with \$539 million in

funding and valued at \$5.6 billion.

Prior to Robinhood, Tenev started two finance companies in New York City. He holds a B.S. in mathematics from Stanford University and an M.S. in mathematics from UCLA. In recognition of his achievements, he has been included on *Forbes'* "30 under 30," *Inc.'s* "30 under 30," and *Fortune's* "40 under 40."

***"My time at UCLA was formative to my adulthood and my entrepreneurial career. I transitioned from being just a learner to developing my own ideas and being a mentor and teacher to others."***

## POLITICAL SCIENCE



### **HOWARD WELINSKY '72**

Howard Welinsky is the former senior vice president/administration for Warner Bros. Distributing. His career at Warner Bros. spanned 42 years, where he rose through the ranks from sales analyst. He's active in Democratic Party politics, having served on the State Democratic Central Committee since 1977 and chairing the Platform Committee for the

past 10 years. Welinsky has been a delegate to three National Democratic Conventions and served on the Platform Committee for four others. He has long advocated for his twin passions of higher education and Israel. Welinsky served on the California Postsecondary Commission for 11 years, and he co-founded the California Coalition for Public Higher Education. He lives in Toluca Lake with his wife Karren Ganstwig, also a UCLA alum. They were married on campus.

***"I have always been proud of my UCLA degree. UCLA is such a special place that combines the pursuit of truth and excellence with great humanity. It's a place where so many first-generation students like me are given a chance to soar."***

## SOCIOLOGY



### **BRADLEY BURNAM '01**

Bradley Burnam is founder and CEO of Turn Therapeutics, a \$250+ million pharmaceutical organization responsible for multiple standard of care products in chronic wound care and dermatology. In an attempt to treat his own hospital acquired skin infection, he developed PermaFusion, a revolutionary delivery system based upon a first-of-its-kind fusion of liquid in oil.

PermaFusion enabled Burnam to create Turn's first product, Hexagen Wound Dressing.

After singlehandedly facilitating Turn's first two FDA clearances, Burnam brought on a team of physicians and executives from the nation's top venture firms, pharmaceutical organizations and government agencies to help build the company to its current prominence. Turn has multiple additional products created by Burnam in clinical trials and is working directly with government agencies and universities to combat resistant microbes on a global scale.

Burnam's story has been featured on Bloomberg and Fox Business News and in publications like *Forbes* magazine. In addition to his UCLA Sociology degree, he holds a master's degree from Stanford University.

***"While at UCLA, I found my 'why,' namely my love of education and the sharing of knowledge via teaching. By following that deeply rooted passion, my 'how' and my 'what' unfolded before me."***







**STATISTICS**



**ARIANA ANDERSON '05, PH.D. '09**

Ariana Anderson is an assistant professor in the UCLA Department of Psychiatry and Biobehavioral Sciences in the Geffen School of Medicine. She recently received the Career Award at the Scientific Interface from the Burroughs Wellcome Fund and was also awarded a K25 Career Award from the National Institute on Aging for her

research in hemodynamic changes and cognitive decline. Anderson's research focuses on bioinformatics and translational science, harnessing data and statistics for biomedical applications. She is the founder of ChatterBaby, an app that uses artificial intelligence to translate a baby's cry into a distinct need. Using electronic medical records and data mining, she has developed new detection algorithms for diabetes screening. She is also working on a method to measure and mitigate the placebo effect, which could have an important impact on drug development and treatment.

***"UCLA promotes creativity at all levels, from students to faculty. This freedom creates a culture of innovation, where scientists such as myself can put into practice our ideas on how to make the world a better place."***

**UNDERGRAD ED — ACADEMIC ADVANCEMENT PROGRAM**



**LAMONICA PETERS '94**

LaMonica Peters began her television news career as the weekend anchor and reporter at WXVT in Greenville, Mississippi. Soon after, she joined WCBI News as a reporter, and in 2015 she started work as a reporter with Spectrum News in Buffalo, New York. She is the recipient of a 2014 Mississippi Associated Press Award of Excellence for a three-part series on breast

cancer and a 2017 New York State Associated Press Award in the public service category. Before working in television, Peters was a producer and segment host of *The Hutchinson Report* for radio station KPFK-FM. There, she also created *The Peters Poll* to engage listeners and increase their involvement via social media. She also worked as a production assistant at KJLH-FM in Los Angeles for *The Front Page*, a community affairs morning show. Peters taught in the Los Angeles Unified School District for nearly 10 years before starting her broadcasting career. She is a former president of the UCLA Black Alumni Association.

***"UCLA will always have a special place in my heart. Being an alumna has afforded me opportunities and experiences I wouldn't have had otherwise. I've established relationships with other Bruins that I will cherish for life, and I'll always be a proud UCLA Bruin."***

# NEW MAJOR EDUCATES NEXT GENERATION OF CLIMATE SCIENCE LEADERS

By Lisa Garibay

**Ashley Hoffman made history in June** as the first student to graduate in the College's newest major, climate science, which is the first major of its kind among the world's top research universities.

Hoffman's personal journey reflects how the new major, housed in the Department of Atmospheric & Oceanic Sciences (AOS), brings disciplines together to address climate change, one of the greatest challenges facing humanity.

She entered UCLA as a mechanical engineering student and switched to computer science her sophomore year. The following spring she discovered courses

in climate science, which had such a deep impact on Hoffman that she switched to the climate science major as soon as it became available in fall 2018.

Hoffman said there's never been a more critical time to study climate science, and she's ready to put her education to good use.

"I feel an enthusiastic obligation to use my education to help living beings," she said. "Whose heart doesn't go out to the sea turtle with the plastic straw stuck in its nose?"

## A new kind of struggle

"Today we're in a new kind of a struggle: a struggle to manage our relationship with our environment, and that is the heart of the climate change issue," said Alex Hall, director of the Center for Climate Science and a professor with joint appointments in AOS and the Institute of the Environment and Sustainability.

Hall, who created the climate science major with fellow AOS professor David Neelin, said the impacts of climate change are impossible to ignore, from the melting of the Arctic sea ice to increase in heat to extremes in precipitation and wildfires.

Scientific understanding of climate's effect on these events has increased dramatically over the past few decades. Add new technology that powers observation and computation, and it makes a fertile field for education for undergraduates, who will be the next leaders to address climate-related challenges.

Hall noted that UCLA scientists have made seminal contributions to understanding how climate works, including the development of models and simulations that are vital to predicting the effects of climate change.



Ashley Hoffman (right) aboard UCLA's Zodiac research boat





Students conduct experiments aboard UCLA's 27-foot Zodiac boat as part of courses like "Biological Oceanography."

Asked which students are best suited for the major, Hall said, "Students who are passionate about science, society and the human relationship with the environment."

Hoffman fits that bill. Growing up in San Diego, she used to walk home from school along the beach. Her middle school gym class was "Surf P.E.," which kept her in the water all year. Unfortunately, she also became very familiar with beach litter.

"But if I had not, I would not be so committed to saving the ocean now," she said.

This translated into taking courses like "Biological Oceanography," "Physical Oceanography" and "California's Ocean." All three included trips on UCLA's uniquely equipped Zodiac research boat, where students conducted hands-on experiments.

### High demand for graduates

Students in the major are exposed to intensive computation techniques used to analyze vast amounts of data, and graduate with skills that can lead to a range of employment and research opportunities, from managing natural resources on behalf of the government to consulting for environmental organizations. As industry becomes increasingly concerned about the risks posed by climate change, climate science majors are expected to be in high demand both locally and globally.

### Making a difference

While the new degree gives Hoffman and her peers a solid foundation in research, it also guides them to engage with the outside world.

"I care deeply about helping people, and I've found this is a way to pursue science while still keeping humans at the forefront," she said. "For example, one of my final projects was on sea-level rise and how it affects coastal communities both socioeconomically and medically."

She said that many of her professors hope their classes will have a lasting effect on students as educators.

For her part, Hoffman hopes to combine her scientific education with her love for communication.

"I see myself working for an environmental justice podcast or a science journalism outlet educating the public on climate issues," she said. "I'm also very open to pursuing data science. I feel good about having a solid scientific foundation leaving [UCLA], no matter where I end up."

She added, "I know I can do something that makes a difference."

**To learn more** about the climate science major, visit <http://climatescience.ucla.edu/>.

### DID YOU KNOW?

The Department of Atmospheric & Oceanic Sciences has a long history of public service and of applying scientific knowledge for societal benefit. It was founded during World War II to train meteorologists to support the Pacific theater of the war.



Allan and Patti Herbert

## IN CONVERSATION WITH ALLAN AND PATTI HERBERT

By Margaret MacDonald

**Longtime Beverly Hills residents Allan and Patti Herbert are keen supporters of higher education, both at their alma mater, the University of Miami, and at UCLA, where they serve on the Life Sciences Centennial Campaign Committee. In 2017, the Patti and Allan Herbert Plaza in UCLA's Mildred E. Mathias Botanical Garden was named in recognition of their major gift to the garden. They have also supported UCLA Life Sciences students through scholarships.**

Married for more than 60 years, the Herberts have two sons, one of whom graduated from UCLA in 1982 with a history degree. Allan is a retired executive of technology firm Teledyne, and Patti is a former commercial real estate broker with Grubb & Ellis in Los Angeles. Patti serves on the board of trustees of Fairchild Tropical Botanic Gardens in Miami and is a member of the board of trustees of the University of Miami. They divide their time between Beverly Hills and Miami Beach, where they own and operate The Richmond Hotel, established in 1941 by Allan's grandparents.

### What's the story of how you met?

**Allan:** I worked for the university newspaper and walked into the office one day to see a cute little "pixie" typing away — that was Patti. We dated for a while and then lost touch.

Two years later, we both happened to be visiting Knott's Berry Farm in LA. She spotted me in the amusement park's "jail" in the replica old western town!

**Patti:** Not long after that, Allan took me on a date to Disneyland, which was then a brand new attraction. That night as we rode around in a stagecoach, I remember we saw Mr. Walt Disney and his wife riding around in another one! We got married two years later and settled in Miami.

### How did you end up in California?

**Allan:** Well, we made a brief stop in Connecticut, where I worked for a couple of years as an audit director in a multinational engineering firm.

**Patti:** After two winters of shoveling snow, I reminded Allan of how much we loved California! Not long after, he accepted a job offer with Teledyne and we moved to Beverly Hills.

### How have you faced life's challenges?

**Allan:** Always with Patti. She and I discuss problems and together we try to arrive at a solution. Without her, it would be impossible.

### What do you most enjoy?

**Patti:** We love to travel, meet new people and experience different cultures. It all started when we went to Europe on our honeymoon

in 1958. One of our favorite places to visit is the Chelsea Physic Garden in London.

### What advice would you give to new grads?

**Allan:** The most practical advice I can give is to get an internship during college, since this helps get a foot in the door and can lead to a good job.

**Patti:** Acquiring leadership skills early on is important. I was president of my sorority and a member of the Panhellenic Association. Both experiences have served me well in my career.

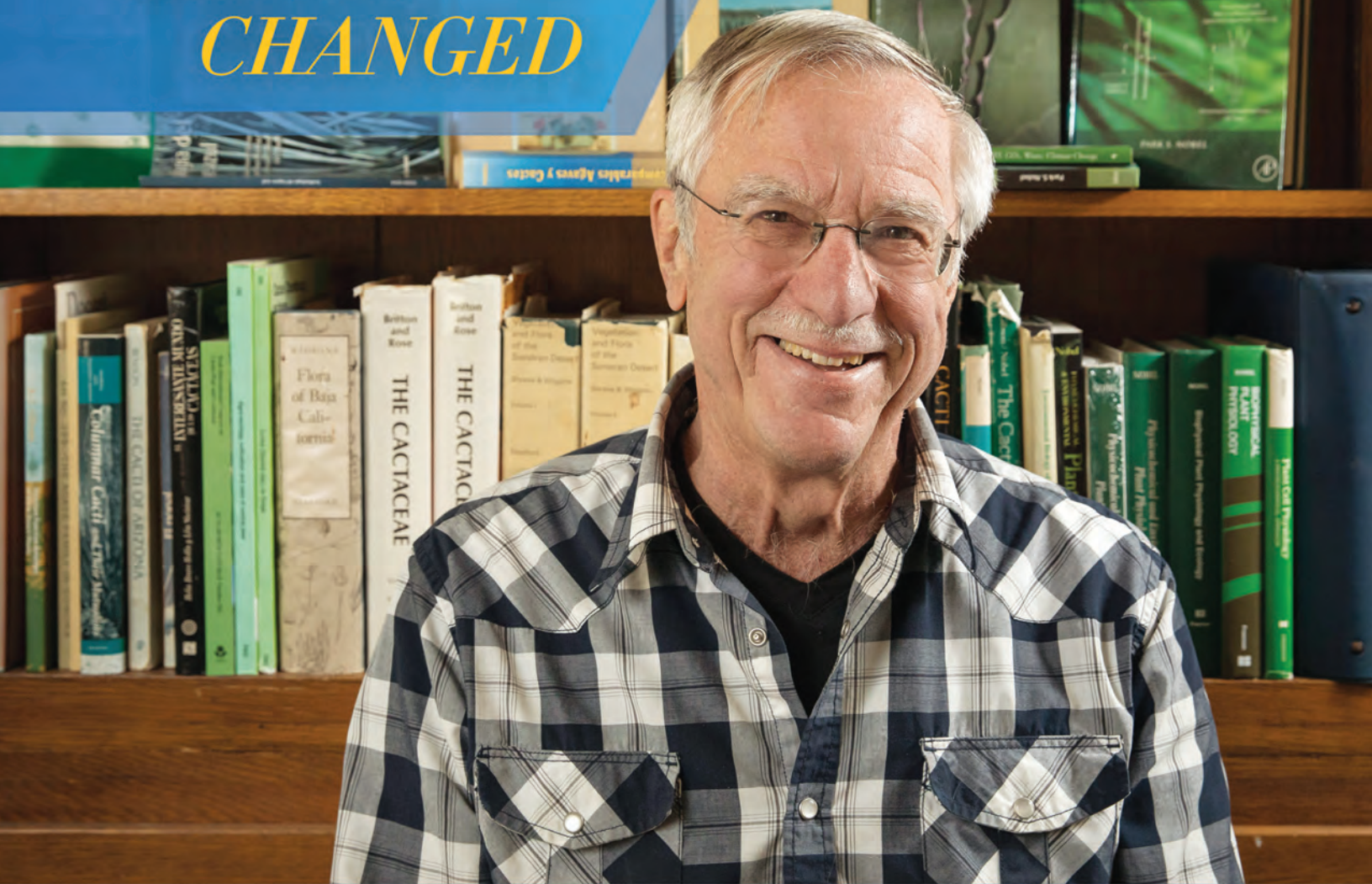
### What has motivated your giving?

**Allan:** We feel it's so important to support students from all levels of society, which by the way is something that UCLA does very well. Through scholarships, we've supported almost 100 students over the years.

**Patti:** Botanical gardens have a special place in our hearts, and after visiting UCLA's wonderful garden, we decided to support its renovation. It feels good to help these corners of paradise thrive.



LET  
THERE  
BE **LIVES**  
**CHANGED**



“I GIVE because of my heartfelt thanks to UCLA for 50 fulfilling years! My support goes to UCLA’s botanical garden, undergraduate scholarships, and ‘Nobel Prizes’ for student research.”

**PARK NOBEL**

DISTINGUISHED PROFESSOR EMERITUS  
DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

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