

UCLA College Magazine

WINTER 2016



THE BRAIN: OUR NEXT FRONTIER



The Deans of the UCLA College
From left to right:

Victoria Sork
Dean of Life Sciences

Miguel García-Garibay
Dean of Physical Sciences

Patricia Turner
Senior Dean
Dean and Vice Provost for
Undergraduate Education

David Schaberg
Dean of Humanities

Laura Gómez
Interim Dean of Social Sciences

THE AMAZING HUMAN BRAIN

When we think of discovery and exploration, our minds might conjure up images of deep, dark oceans and distant planets. But the unknown is not confined to the seas and the heavens—some of the greatest mysteries are those lodged deep inside of us.

Some say the next frontier is Mars.
We don't disagree. But there's another undiscovered place much closer to home, one we all share: the amazing human brain.

We dedicate this issue of the *UCLA College Magazine* to the most complex and sophisticated instrument on Earth — one that, if better understood, could reshape our entire way of life.

On pages 12-13, we highlight some of the important work underway at UCLA to better understand the brain. Unlocking its mysteries could solve some of the most devastating problems facing our society, like post-traumatic stress disorder, depression and Alzheimer's. And it could unleash human potential and improve our quality of life in ways not yet even imagined: Where does happiness come from? How do we spark curiosity? How can we strengthen relationships?

At UCLA, we are at the forefront of that expedition. In one of the highest ranking psychology departments in the country, our scientists are pushing the boundaries of understanding of the brain and the mind.

We hope to cure depression. We hope to cure PTSD. We hope to cure addiction. And we are close.

That is why we have launched an ambitious initiative to modernize psychology facilities and provide our faculty and students the tools they need to reach their goals (see page 2 for the story). We believe that this cause is as meaningful to our society as finding new worlds and reaching new depths.

With the help of our community, UCLA Psychology will remain among the best in the nation and a leading hub of discovery.



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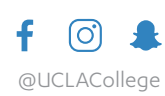
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NEW LEADERSHIP, PROGRAMS ANNOUNCED FOR THE COLLEGE

Leadership changes in the College

Patricia A. Turner was appointed senior dean of the UCLA College for a two-year term beginning July 1, assuming the leadership role from retiring dean Joseph Rudnick. In addition to leading their divisions, the five UCLA College deans share responsibility for collegewide issues and functions.

As senior dean, Turner continues her leadership of the Division of Undergraduate Education and also coordinates the deans' shared responsibilities, including planning, budgeting and decision making on collegewide issues and policies; fundraising for collegewide initiatives; and representing the College on campus, throughout UC and externally. Turner came to UCLA in 2012 from UC Davis, where she was vice provost for undergraduate education.

Miguel García-Garibay, chair of the Department of Chemistry and Biochemistry, was appointed dean of Physical Sciences effective July 1. His research group has earned worldwide recognition in the fields of organic photochemistry, solid-state organic chemistry and physical organic chemistry. UCLA's physical sciences division is among the best at any public university in the country, according to respected rankings including the *Times Higher Education World University Rankings*.

García-Garibay has been a member of UCLA's faculty for more than two decades. He's a fellow of the American Association for the Advancement of



Franz Hall is one of three UCLA Psychology buildings that will be modernized and upgraded as part of a new \$150 million capital project.

Science, and has won numerous honors for his research, including from the National Science Foundation and the American Chemical Society. He's a member of the California NanoSystems Institute, Society for Advancement of Chicanos/Hispanics and Native Americans in Science, and Royal Society of Chemistry.

Along with maintaining the highest level of research with the highest quality education, García-Garibay said his priorities are enhancing diversity and undergraduate research in the physical sciences.

Laura Gómez was appointed interim dean of Social Sciences on July 1. Gómez takes over from Alessandro Duranti, who completed his second term as dean and returned to the anthropology faculty. Gómez holds a primary appointment in the UCLA School of Law and joint appointments in the departments of sociology and Chicana/o studies in the College. Gómez's research spans the fields of law and society, critical race theory and the sociology of race, and her articles have appeared in journals

including *Law and Society Review* and the *Annual Review of Law and Social Science*.

She began her academic career at UCLA in 1994 and joined the University of New Mexico as a professor of law and American studies in 2005. She returned to UCLA in 2011, where she served as vice dean for faculty development at the law school and co-directed the school's Critical Race Studies Program. Her honors include a Truman Scholarship, an NSF Minority Graduate Fellowship, and recognition as one of *Hispanic Business* magazine's "100 Most Influential Latinos."

Life Sciences division launches \$150 million capital project for psychology

UCLA Life Sciences Dean Victoria Sork has launched a \$150 million capital project to renovate and build a state-of-the-art research and education complex housing the No. 1 clinical psychology program and No. 2 psychology department in the nation — and empowering foundational science research that will improve the quality of life for millions worldwide.

The capital project will propel UCLA's efforts to address challenges to brain health — such as depression, anxiety, post-traumatic stress and schizophrenia — as well as efforts to define what constitutes a healthy brain, through research in areas such as social networking, the nature of happiness, and personal relationships.

Home to the largest department on campus (more than 3,200 undergraduates) and 65 faculty members, UCLA psychology will be able to significantly enhance education and training for new generations of scientific leaders in modernized labs and classrooms. The department has strong collaborations throughout campus, including with the Semel Institute for Neuroscience and Human Behavior, the UCLA Brain Research Institute, and the Jonsson Comprehensive Cancer Center in the UCLA David Geffen School of Medicine.

UCLA Psychology's current three-building complex was built over a 30-year period between 1939 and 1969. Planned seismic upgrades to one of the buildings present a fortuitous opportunity to upgrade, modernize and expand the entire complex for the 21st century.

Master of Social Science Program to launch in 2017

Applications are now being accepted for the newly established Master of Social Science (MaSS) Program, the first of its kind on the West Coast.

Launching in Fall 2017, the nine-month program is expected to attract high-potential students who will benefit from training in social science research and perspectives to become strong candidates for top Ph.D. programs or for career positions requiring sharp analytical, quantitative and qualitative skills. Working closely with faculty mentors, students will learn the nuts and bolts of social science research, including how to identify, frame and analyze complex social problems and to conduct and analyze research.

Learn more about the program at <http://mass.ss.ucla.edu/>.

UCLA to participate in NSF-funded science and technology imaging center

UCLA is helping to lead the new, cutting-edge Science and Technology Center on Real-Time Functional Imaging. The center is funded by a five-year, \$24 million award from the National Science Foundation, and includes renowned



Professor Tracy Johnson is one of the leaders of the Bruins In Genomics Summer Undergraduate Research Program for future bioscience leaders.

scientists from the University of Colorado, Boulder, and UC Berkeley. It will tackle major scientific challenges in the physical sciences, life sciences and engineering.

The project addresses a critical national need for imaging science to enable scientific breakthroughs and technological advances at an important time for the U.S. to remain competitive in science and technology. The seven UCLA professors participating in the program are deputy director and co-principal investigator Jianwei "John" Miao (physics and astronomy), as well as Pietro Musumeci and Chris Regan (physics and astronomy), Jose Rodriguez (chemistry and biochemistry), Shimon Weiss (chemistry and biochemistry, and physiology), Z. Hong Zhou (molecular genetics, microbiology, and immunology), and Stanley Osher (mathematics).

Miao said that the work of the center, known as Strobe because of its use of stroboscopes for imaging, will integrate several approaches and technologies — including photon and electron-based imaging, advanced algorithms, big data analysis and adaptive imaging — to deal with issues that have the potential to transform imaging science and technology.

UCLA undergraduate and graduate students will have an opportunity to participate in the research, he said, adding that students trained in imaging science are needed in all areas of science and advanced technology.

UCLA hosts summer program for future biosciences leaders

Twenty-eight outstanding undergraduates from across the country spent eight weeks at UCLA over the summer, conducting research and learning the latest data analysis techniques and skills that are transforming the biosciences.

The exceptional young scholars participating in the Bruins In Genomics Summer Undergraduate Research Program show promise as future leaders in the biological and biomedical sciences, said Tracy Johnson, program co-leader and a professor who holds the Maria Rowena Ross Chair of Cell Biology. She said the program aims to improve diversity and strengthen graduate programs throughout the University of California system.

The group includes eight students from three Historically Black Colleges and Universities — Florida A&M, Fisk University and Morehouse College. African Americans are underrepresented in UC and national graduate and professional programs. From 2010 to 2014, the average enrollment of African Americans in UC doctoral programs was only 2.8 percent. Other underrepresented minorities in the program include two Latinos and nine students of Asian descent. More than half of the participants are women, who are also underrepresented in the sciences.

Learn more: Watch a video about the program at <http://ucla.in/2arJp5t>.



TOP RANKINGS FOR THE COLLEGE, HONORS FOR COLLEGE FACULTY AND STUDENTS

UCLA ranked No. 10 in the world by *U.S. News & World Report*

UCLA is No. 2 among American public universities and No. 10 in the world, according to the *U.S. News & World Report* "2017 Best Global Universities" rankings.

The rankings, which are based on the evaluation of 1,000 universities in 65 countries, measure global and regional reputation and academic research performance using 12 indicators. UCLA ranked highly in several of these indicators, including global research reputation (No. 8), publications (No. 10) and number of papers that are among the top 1 percent most cited (No. 10).

UCLA also was named among the very best in the following subject rankings: psychiatry/psychology (No. 5), chemistry (No. 7), neuroscience and behavior (No. 6) and mathematics (No. 8).

Three professors named 2016 Guggenheim Fellows

A trio of faculty members are among a distinguished group of 178 scholars, artists and scientists from the U.S. and Canada to receive 2016 Guggenheim Fellowships. UCLA is tied for sixth in the number of 2016 fellows. All three of this year's fellows are from the College.

Neil Garg, professor of chemistry and biochemistry, and the Carnegie Foundation for the Advancement of Teaching's 2015 California Professor of the Year, develops new chemical transformations that enable the synthesis of important organic molecules. His Guggenheim research project will focus on new chemical reactions catalyzed by non-precious metals.

Stella Nair, associate professor of art history and a member of UCLA's Cotsen Institute of Archaeology, was trained as an architect and architectural historian. Her research examines the art, architecture and urbanism of indigenous communities in the Americas before and after the arrival of Europeans. Her Guggenheim research project is titled "Shelter, Shrine and Prison: the Acllawasi and Other Spaces for Women in the Inca Empire."

Zrinka Stahuljak is a professor of French and francophone studies and of comparative literature. A former wartime interpreter on the front lines of the wars in the former Yugoslavia, her research interests include continental French, Anglo-French and Mediterranean literature, history and culture. Her Guggenheim research project will be "Medieval Fixers: Translation in the Mediterranean, from 1250 to 1500."

Professor elected to American Academy of Arts and Sciences

Professor **Robert Buswell** of Asian Languages and Cultures has been elected to the American Academy of Arts and Sciences. Buswell is the Distinguished Professor of Buddhist Studies in the UCLA Department of Asian Languages and Cultures and founding director of the Center for Buddhist Studies and Center for Korean Studies at UCLA. Since June 2009, he has been serving concurrently as founding director of the Dongguk Institute for Buddhist Studies Research (Pulgyo Haksurwŏn) at Dongguk University in South Korea. He has published 15 books and some 40 articles on various aspects of the Korean, Chinese, and Indian traditions of Buddhism, as well as on Korean religions more broadly.

Hubbell receives International Prize for Biology

Stephen Hubbell, a distinguished professor of ecology and evolutionary biology at UCLA, is the 2016 laureate of the International Prize for Biology. Awarded by Japan's Society for the Promotion of Science, the International Prize for Biology is one of the highest scientific honors bestowed by Japan.

Hubbell is renowned as an international leader in advancing our scientific understanding of complex tropical forests, essential data for their successful conservation and management. He has published four books — including *The Unified Neutral Theory of Biodiversity and Biogeography*, which has been cited more than 5,800 times — and authored more than 220 scientific papers on tropical plant ecology, theoretical ecology, plant-animal interactions and animal behavior.

Villaseñor Black wins top faculty prize

Charlene Villaseñor Black is the recipient of the 2016 Gold Shield Faculty Prize, given by the Gold Shield Alumnae of UCLA to a midcareer faculty member who has displayed outstanding accomplishments in teaching, research and community service.

Villaseñor Black was nominated for the prize by peers in both of her departments, art history and Chicana/o studies. Initially trained as a scholar of Spanish Baroque art, she expanded her research interests to include the arts of the Spanish colonies and of the contemporary Chicana/o community. According to her colleagues who nominated her, she is “a cutting-edge scholar whose work crosses traditional geographical, chronological and disciplinary boundaries. Her position at UCLA, poised between Latin America and the Pacific Rim, has helped her establish an international reputation as a leading scholar of global networks in the early Iberian world.”

Falkenhausen elected to American Philosophical Society

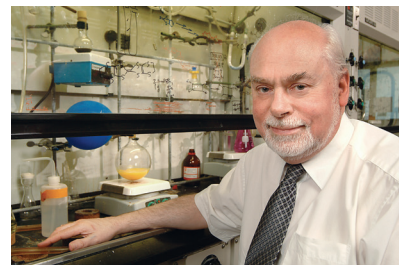
Lothar von Falkenhausen, associate director of the Cotsen Institute of Archaeology at UCLA and professor of Chinese archaeology and art history, was elected as one of 33 new members at the American Philosophical Society’s Meeting this past April. Each year resident members of the APS nominate top scholars to be elected into the honorary society.

As a professor and polyglot, von Falkenhausen has taught around the world in local languages. Most recently,



Lothar von Falkenhausen

he published *Chinese Society in the Age of Confucius*, which has been translated into Japanese, Chinese and Korean. His previous publications’ subjects range from ancient musical instruments to ancient salt production and span various centuries, cultures and disciplines. Named as the leading archeologist of China of his generation, von Falkenhausen is known for combining archeology and philosophy with intellectual, social, technological and economic history.



J. Fraser Stoddart

Professor emeritus wins 2016 Nobel Prize in chemistry

J. Fraser Stoddart, who was a professor of chemistry and biochemistry at UCLA from 1997 to 2008 and is currently the Board of Trustees Professor of Chemistry at Northwestern University, has been awarded the 2016 Nobel Prize in chemistry.

Stoddart shared the award with Jean-Pierre Sauvage of the University of Strasbourg in France and Bernard Feringa of the University of Groningen in the Netherlands. The Nobel committee lauded them for taking “molecular systems out of equilibrium’s stalemate and into energy-filled states in which their movements can be controlled.”

In particular, Stoddart was recognized for his 1991 development of a “rotaxane,” a structure in which a molecular ring is threaded onto a thin molecular axle, and for demonstrating that the ring could move along the axle. That achievement led to innovations such as a molecular lift, a molecular muscle and a molecule-based computer chip.

“Fraser Stoddart is one of the world’s most innovative organic chemists, and he richly deserves this high honor,” said professor Catherine Clarke, chair of UCLA’s department of chemistry and biochemistry. “His research has consistently defined the frontier of science and innovation in his field.”

Stoddart is currently professor emeritus in the UCLA department of chemistry and biochemistry. He returns to UCLA each year to award the Norma Stoddart Prize for Academic Excellence and Outstanding Citizenship, which was named in memory of his late wife, to a recent UCLA doctoral graduate in the chemistry and biochemistry department. The prize was endowed by the Stoddart family in 2004 and first presented in 2011. Norma Stoddart was an accomplished biochemist and longtime adviser and manager of the Stoddart lab.



Six new Fulbright Scholars from the College

UCLA tripled its number of Fulbright scholars over last year, and all six 2016-17 scholars are students in the UCLA College. From left to right: Interim Dean of Social Sciences Laura Gómez, Elisabeth Schoepflin, Leydy Diossa-Jimenez, Claudia Huang, Laura Reizman and Dean of Humanities David Schaberg. Not Pictured: Jonathan McCollum, James Johnson.

DIGITAL HUMANITIES STUDENTS SHINE A LIGHT ON THE HISTORY OF AFRICAN AMERICAN FILMMAKERS

By Jessica Wolf

While the #OscarsSoWhite controversy raged over the dearth of people of color nominated for Academy Awards this past year, a group of digital humanities students at UCLA channeled their frustration into meticulously building the little-known history of silent films made for and by African Americans in the early 20th century.

What they found, and sought to highlight, is that African American artists are deeply entwined in the history of filmmaking, and can be traced back to the medium's beginnings.

The result of their efforts is "Early African American Film: Reconstructing the History of Silent Race Films, 1909-1930," an informational website and searchable database that tracks the African American actors, crew members, writers, producers and other artists who were making films during the silent era.

"We were venturing into pretty unknown territory and I really wanted to be a part of telling the stories of this generation of African American people and their contributions," said Shayna Norman, who graduated last spring. "The fact that the #OscarsSoWhite

controversy blew up at the same time we worked on it made this project feel even more relevant and important."

Hands-on research

Students worked closely with UCLA Library Special Collections, combing through old journals, production notes, posters and fliers to reconstruct what was once a thriving and collaborative network of African American writers, directors, actors and producers who were making what were known as "race films."

Relying partially on the work of historians who have unearthed documentation of these forgotten filmmakers, the UCLA student team set its parameters to include films from 1909 to 1930 that featured African American cast members, were produced by an independent production company and discussed or advertised as a race film in the African American press.

While the community was vibrant, it struggled to gain mainstream traction. In the silent-film era, productions that fit the "race films" description, like those produced by the Hampton and Tuskegee Institutes, *A Trip to Tuskegee* (1909), *John Henry at Hampton* (1913) and *A Day at Tuskegee* (1913), could be shown only in certain theaters, or often in African American churches, and were played to segregated audiences. Most of these films, therefore, received scant mainstream media attention. The actual film reels were not preserved in any systematic way or protected in hermetically sealed vaults, which has led to physical degradation.

Finding forgotten films

Few films survive, though Miriam Posner, core faculty and program coordinator for the digital humanities at UCLA, was partially inspired to ignite the project thanks to the recent release of a compilation of films from Kino Lorber called *Pioneers of African-American Cinema*.

The scarcity drove the students.

"I love archives and am really interested in the ethics of the archive and archiving in general," said Hanna Elyse Girma, who was part of the project



Motion picture director Oscar Micheaux (center) with an actor and a possible crew member appearing in an advertisement for the Micheaux Film Corporation.

before graduating last year. “Reconstructing the most comprehensive database we could was really exciting to me, even though we had a lot of challenges.”

Coming up empty on internet searches caught students particularly off guard, Norman said.

“We’re not used to that kind of obscurity, but so much of the data has been lost or damaged, is not in any history textbooks in our educational system, and is not easily searchable,” she said.

A centering figure in the students’ archival exploration was Oscar Micheaux, author, filmmaker and founder of the Micheaux Film Corporation, one of the most prominent producers of the era’s race films. He kept copious notes and records on the actors and crew members he worked with, providing much-needed fodder for the database. Micheaux’s *Within Our Gates* (1919) is one of the few examples of a race film that garnered some attention — and an audience — from the white press.

Making data accessible worldwide

The project exists as a perusable database on the code-sharing site GitHub that others may use, build upon and correct. The site maintains a trail of attribution to the UCLA project.

“Not everyone knows how to work with data like ours, so we also spent a lot of time building tutorials that show people exactly how to create their own network graphs, maps and other kinds of analysis using our data,” Posner said.

Capstone activities like this are extremely important in the digital humanities field because students have the best, most meaningful experiences while apprenticing on an active project, she said.

“We love the way that students and faculty come to rely on each other, developing mutual respect for each other’s skills and abilities,” Posner said. “In a lot of cases, the capstone projects like this are specifically designed to live on after the quarter has ended. In all cases, we ensure that we preserve a ‘snapshot’ of the work from the time the quarter ended, and that all students are credited for their work.”

Working on a project like this has made lasting impact on the students.

“We get to work on a project that leaves an important footprint,” Girma said. “That’s the amazing part of the digital humanities.” A World Arts and Cultures major, Girma said she added a digital humanities minor in her fourth year after she heard from a friend that the coursework was “life-changing.”

Norman said that she hopes to pursue a career that allows her to continue working at the intersection of entertainment and digital technology.

“I’m a media junkie and by being involved in digital humanities projects like this one, I can see how such digital research methods and skills are relevant and needed in this growing age of mass consumer media.”



Top: Poster for *Black Gold*, Richard E. Norman's lost final feature. Norman was a pioneer in the development of films for African American audiences.

Bottom: Photo from *Within Our Gates* (1919), the oldest known surviving film made by an African American director.



@LEARN MORE:

Explore the students’ research, “Early African American Film: Reconstructing the History of Silent Race Films, 1909-1930,” on their website at <http://ucla.in/2fhm3BQ>

Watch race film *Within Our Gates* at <https://youtu.be/h1EONrcnwAE>

'Jump-starting' the brain of a patient recovering from a coma

New noninvasive technique could result in low-cost therapy for patients with severe brain injury

By Stuart Wolpert

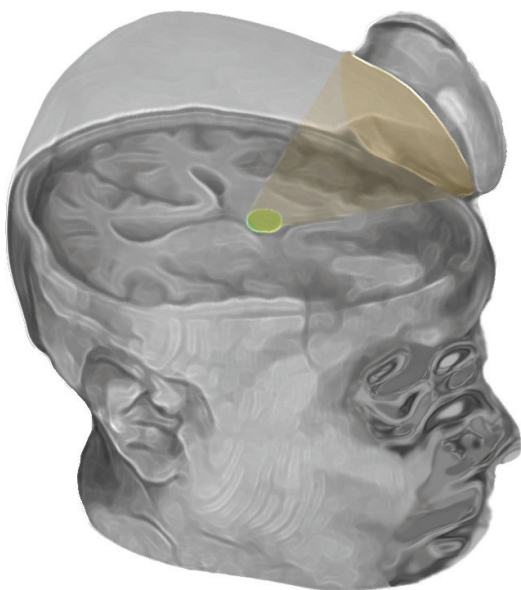
A 25-year-old man recovering from a coma has made remarkable progress following a treatment to “restart” his brain using ultrasounds, a team of UCLA scientists reported in a letter published in the journal *Brain Stimulation*. This is the first time such an approach to severe brain injury has been tried.

“Our technique uses sonic stimulation to excite the neurons in the thalamus – almost as if we were jump-starting them back into function,” said lead author Martin Monti, associate professor of psychology and neurosurgery. “Until now, the only way of achieving this was for a patient to undergo brain surgery and have electrodes implanted directly inside the thalamus – an egg-shaped structure which serves as the bustling central hub for information flow within the brain – a risky procedure known as deep brain stimulation. Our approach directly targets the thalamus, but is noninvasive.”

This new technique, called low intensity focused ultrasound pulsation (LIFUP), has been pioneered by co-author Alexander Bystritsky, professor of psychiatry and

biobehavioral sciences in the Semel Institute for Neuroscience and Human Behavior and founder of Brainsonix, which provided the experimental device for this research. In this approach, a small device, about the size of a coffee cup saucer, is placed by the side of a patient’s head. The device creates a small sphere of acoustic energy that can be aimed at different regions of the brain to excite or inhibit brain tissue. Monti said the technique is quite safe, partly because the amount of energy from each stimulation is small. The researchers repeated it 10 times over 10 minutes.

The changes in the patient’s brain were remarkable, Monti said. Before sonic stimulation, the patient could show only minimal signs of being conscious and of understanding speech. By the day after the sonic stimulation, he was able to show greater responses and started vocalizing responses. Three days later, the patient was fully conscious, had regained full language comprehension, could reliably communicate by gesturing “yes” or “no” with his head, and even gave a fist-bump.



Representation of ultrasonic stimulation of the brain's thalamus in a post-comatose patient.

"This result is exactly what we expected," Monti said.

However, he cautioned that this is only one patient. "It is possible that we were just very lucky and happened to have stimulated the patient just as he was spontaneously recovering," Monti said. "This is why it is so crucial, before we get too excited, that we repeat this procedure in more patients."

Joining with Ronald Reagan UCLA Medical Center

Monti and his colleagues, under the direction of UCLA professor Paul Vespa, are planning to perform this procedure in several more patients at the Ronald Reagan UCLA Medical Center, working with UCLA's Brain Injury Research Center, and

with funding from the Dana Foundation and the Tiny Blue Dot Foundation.

If the researchers are able to demonstrate that the recovery in this patient was linked to the ultrasound stimulation, the potential for this technique could be very large. There are currently few effective treatment options for patients in a coma, Monti said.

Monti's long-term goal is to one day be able to build a small portable device, perhaps a helmet, that could be brought to the bedside of a patient who is in a coma and, with no surgery, help the brain return to normal levels of function, leading to the return of cognitive functions and consciousness.

Hope for an entirely new treatment

Monti said he hopes his technique could be the beginning of a new noninvasive, low-cost therapy to help wake up patients in a coma — perhaps even patients in a vegetative state and in a minimally conscious state, for whom there is almost no effective treatment.

The idea behind this new approach is that when patients fail to fully recover from a coma, and awaken to a state of deeply impaired mental function, this is due partly to an impairment in the functioning of the thalamus. Pharmacological treatment targets the thalamus only indirectly.

Co-authors are Vespa, who holds UCLA's Gary L. Brinderson Family Chair in Neurocritical Care, and is a professor of neurology and neurosurgery at the UCLA David Geffen School of Medicine, and director of neurocritical care at the Ronald Reagan UCLA Medical Center; Caroline Schnakers, a UCLA researcher in neurosurgery; Bystritsky; and Alexander Korb, a researcher in the Semel Institute.

MEET THE PROFESSOR:

In his own words

By Martin Monti

In my laboratory we focus on two of the most fundamental aspects of being human:



1. What is the relationship between language and thought?

Does language make us special? One of the most

striking features of human cognition is the ability to generate an infinite number of ideas by combining a finite set of elements according to structure-dependent principles. This ability is most clearly displayed in language, but also characterizes other aspects of our cognition such as drawing inferences, performing mental arithmetic or music cognition. Does language enable other types of structure-dependent cognition? Does the structure of natural language provide a scaffolding on which to build other forms of high-level cognition? In my research I employ behavioral and fMRI tools in healthy volunteers and patients to address these questions.

2. How is consciousness lost and recovered after severe brain injury?

How do we ever know that someone, other than ourselves, is conscious? Philosophical considerations aside, this issue is at the heart of one of the most challenging and least understood conditions of the human brain: the Vegetative State. This is a condition in which, after severe brain injury, patients are awake but not aware. In my research I focus on brain processing and consciousness in these patients, to try to ameliorate diagnostic procedures and to develop new interventions that may help recovery.

@WATCH IT HERE Professor Monti on "The Mystery of Consciousness and the Vegetative State" at TEDx Claremont Colleges: https://youtu.be/HW_4QArGScg

UCLA researchers determine the structure of a toxin that kills malaria-carrying mosquitoes

Results pave the way for genetically engineering the toxin to be lethal to other mosquito species transmitting Zika virus and dengue fever

By Katherine Kornei

An international team of scientists, including five UCLA researchers, has used X-rays to reveal the structure of a molecule toxic to disease-carrying mosquitoes.

Nearly half of the world's population is at risk of contracting malaria, a life-threatening disease transmitted by mosquitoes. Chemical insecticides are often a first line of defense against mosquitoes, but their application can result in both environmental pollution and resistance to the pesticide. The research was published in the journal *Nature*.

Countries around the globe have recently begun killing mosquito larvae using a natural toxin derived from bacteria. Now UCLA scientists and their collaborators have used X-rays to determine

the atomic structure of this larvicide, which is lethal to mosquitoes transmitting malaria and West Nile virus. These results reveal how the toxin functions, knowledge that will inform future efforts to genetically engineer it to also kill mosquitoes carrying Zika virus and dengue fever.

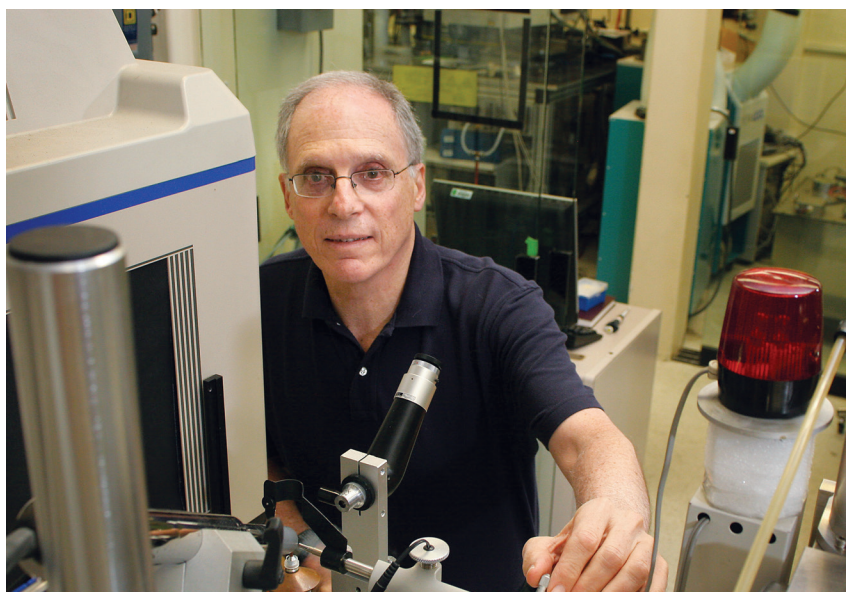
"This is a chance to have a positive effect on a lot of the world's population," said senior author David Eisenberg, UCLA's Paul D. Boyer Professor of Molecular Biology and a Howard Hughes Medical Institute investigator.

Eisenberg and his colleagues studied the larvicide known as BinAB, which is produced by soil-dwelling bacteria. The bacteria pack BinAB into tiny crystals, thousands of which could be stacked across the head of a pin. When these crystals are scattered into the watery environments in which mosquitoes thrive, hungry mosquito larvae eat the crystals. But the meal turns out to be a deadly one.

As the crystals pass through the larvae's digestive tract, the gut juices of the larvae trigger the crystals to dissolve. The BinAB toxin is released, and its component molecules — called BinA and BinB — play distinct roles in entering the cells of the larvae's guts and killing the young mosquitoes within 48 hours.

BinAB is toxic to the *Culex* and *Anopheles* species of mosquitoes — carriers of West Nile virus and malaria, respectively — but at this point is harmless to the *Aedes* species, the carriers of Zika virus and dengue fever.

"The toxin is this complex shape, and it has to fit with another shape on the intestine of the larvae. If the shapes don't match up precisely, the toxin cannot get in the cell. It's like a lock and key," said Michael Sawaya, a staff scientist at UCLA involved in the study, to explain BinAB's specificity.



David Eisenberg

Genetically engineering an effective toxin

Researchers are interested in genetically engineering BinAB to also kill the larvae of *Aedes* mosquitoes, work that requires a detailed understanding of BinAB's atomic structure. However, the small size of the crystals containing BinAB has made it difficult for scientists to hold them securely in laboratory instruments for analysis.

The UCLA researchers and their colleagues, including Dr. Jacques-Philippe Colletier, a former UCLA researcher now working in France, overcame this size limitation by harvesting crystals from a particular strain of soil-dwelling bacteria engineered to produce larger crystals. The scientists then studied the precise shape of the BinAB toxin within the crystals using an X-ray laser. Eisenberg and his colleagues bombarded the crystals with an X-ray laser invented by a UCLA physicist.

"When we shine X-rays on the crystals, the X-rays are scattered into thousands of X-ray beams," said Eisenberg, who is also a professor of chemistry, biochemistry and biological chemistry and a member of UCLA's California NanoSystems Institute. "These beams contain information about the arrangement of the atoms that make up BinA and BinB."

Novel use of X-ray laser

This type of X-ray laser has never before been used to study a sample with an unknown structure. "We can do entirely new types of experiments using these X-ray lasers," said co-author Jose Rodriguez, a UCLA assistant professor of chemistry and biochemistry.

The researchers found that the BinA and BinB molecules making up BinAB were crossed in an "X" shape. "They're hugging each other," Eisenberg said of the BinA and BinB molecules. This geometry helps ensure that the BinA and BinB molecules exist in equal numbers, which contributes to BinAB's toxicity.

The scientists also isolated four special sites on the BinAB toxin that were most likely to be involved in the larvicide splitting into BinA and BinB, a transformation critical to the lethal nature of the toxin.

"You can think of the molecule as...having four latches," Rodriguez said. "When these latches

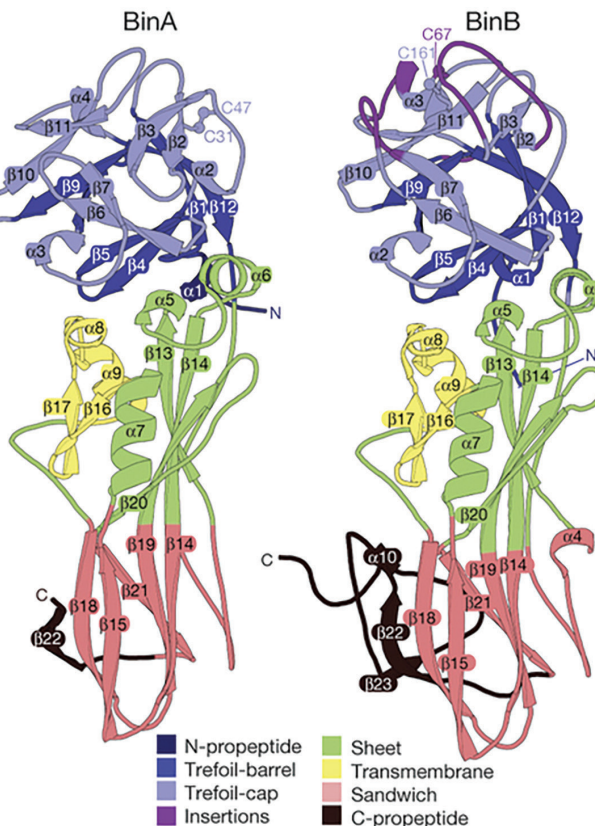


Figure showing BinA and BinB folds and carbohydrate-binding modules. BinA and BinB are structurally similar to each other. The most noticeable differences correspond to insertions in surface loops on the trefoil domains (purple). UCLA researchers used an X-ray laser to determine the arrangement of atoms.

open, the molecule can change its shape. These crystals have to go through a lot of transformations before they actually reach the target location."

The scientific world is now one step closer to genetically engineering BinAB to be lethal to the mosquitoes that carry Zika virus and dengue fever.

Eisenberg is optimistic. "It would be hard to find a problem that could potentially affect the health of more people," he said.

Funding sources for the research include the Howard Hughes Medical Institute, W.M. Keck Foundation, National Science Foundation, National Institutes of Health, and the U.S. Department of Energy Office of Science and Office of Basic Energy Sciences.

"It would be hard to find a problem that could potentially affect the health of more people."

THE BRAIN: OUR NEXT FRONTIER

LATERAL VIEW

Prefrontal Cortex*

Hippocampus*

Anterior Insula

[UNDERSTANDING OUR
SOCIAL NATURE AND ITS
PSYCHOLOGICAL BENEFITS]

Ventrolateral Prefrontal Cortex

[EXPLORING THE LIMITATIONS
OF THE ADOLESCENT BRAIN]

* Hippocampus • Prefrontal Cortex

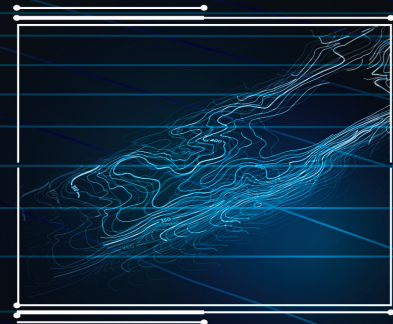
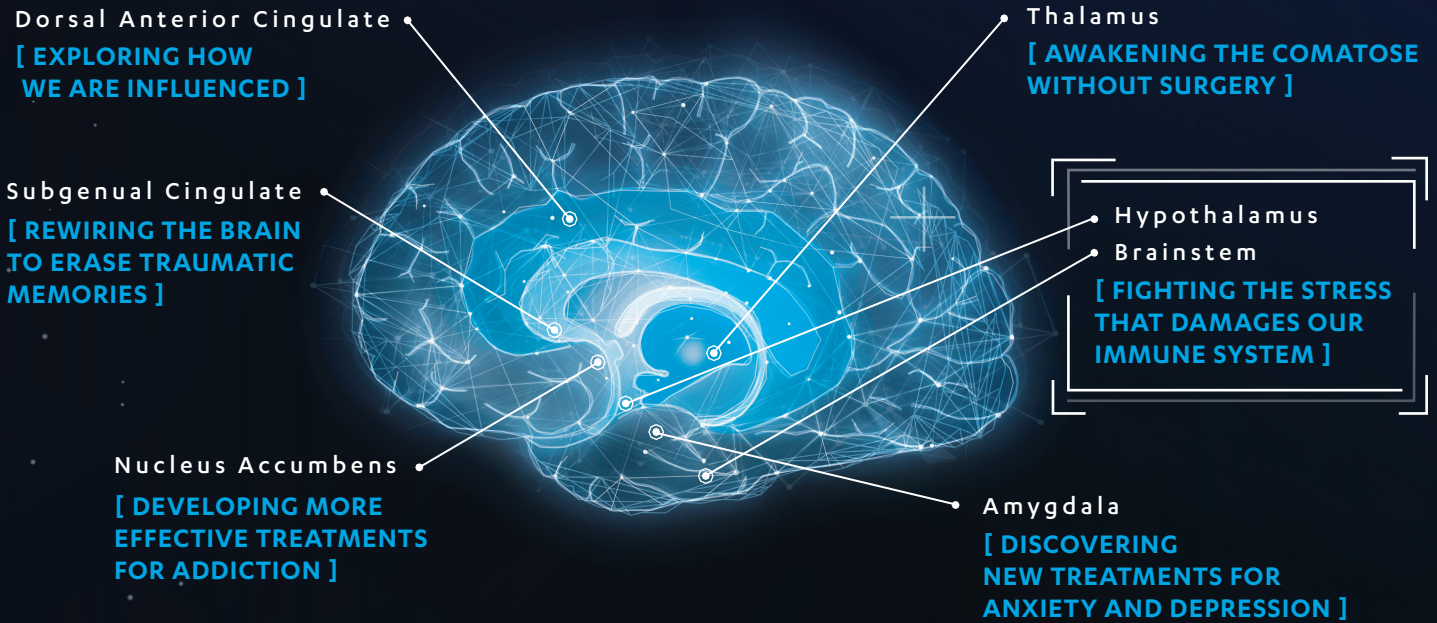
[FIGURING OUT HOW WE LEARN TO
IMPROVE HOW WE TEACH]

[ILLUMINATING MEMORY: HOW WE
REMEMBER, PAY ATTENTION AND FORGET]



UCLA faculty and students are on the brink of historic breakthroughs on the most complex and least understood organ in the body. Through the use of the latest technology, the top-rated UCLA Department of Psychology is studying all aspects of brain health.

SAGITTAL VIEW



Mapping the costs of incarceration in Los Angeles

MILLION DOLLAR HOODS WEBSITE PROVIDES UNPRECEDENTED ACCESS TO JAIL DATA

By Jessica Wolf

As the realities of mass incarceration face increased scrutiny across the nation, UCLA researchers have launched Million Dollar Hoods, a website and digital mapping project that shows the disparate impact of the Los Angeles jail system — the largest in the United States.

Million Dollar Hoods maps how much money the Los Angeles County Sheriff's Department and the Los Angeles Police Department spend per neighborhood to incarcerate residents in county and city jails.

The project's goal is to provide unprecedented public access to jail data in Los Angeles and identify patterns of incarceration throughout the county. The

maps also let users examine the data by race, gender, type of crime and leading cause of arrest for every neighborhood.

"What we have uncovered is that LA's nearly billion-dollar jail budget is largely committed to incarcerating residents of just a few neighborhoods," said Kelly Lytle Hernandez, UCLA professor of history and African American Studies. "In some neighborhoods, such as Lancaster, Palmdale and Compton, tens of millions of dollars have been spent since 2010."

Breaking down a billion-dollar jail budget

Since 2010 Los Angeles County spent more than \$82 million incarcerating residents from Lancaster and more than

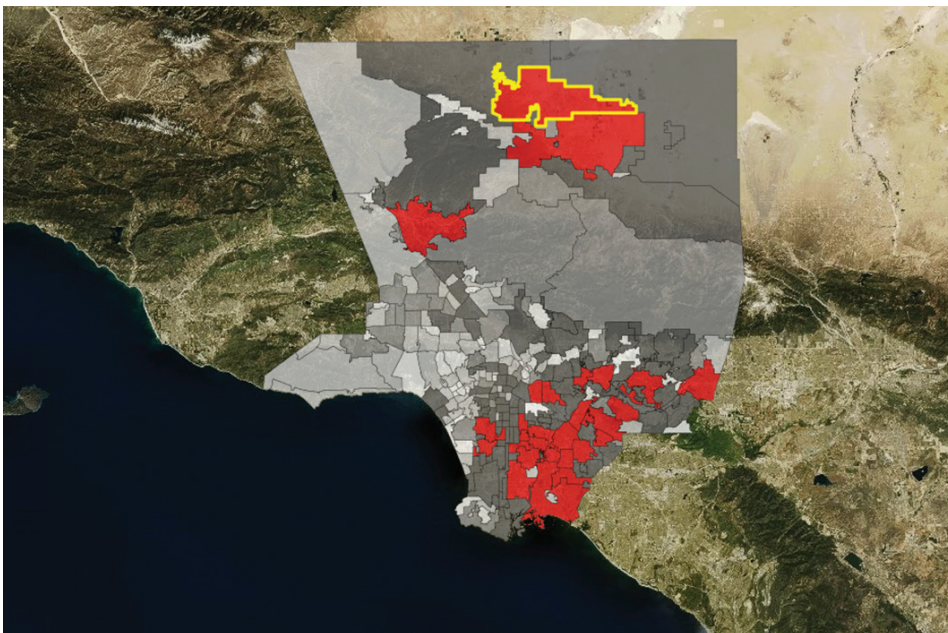
\$61 million incarcerating people from Palmdale, with DUI and possession of a controlled substance the top two causes of arrest. In that time, nearly \$40 million was spent incarcerating residents from Compton, where the top cause of arrest was possession of a controlled substance.

Lytle Hernandez, who led the project, secured the required data via requests to the sheriff's department and LAPD through the California Public Records Act. The sheriff's department repeatedly denied her requests but granted access in January 2016. Since then, she has worked with a team of UCLA geographic information systems experts to bring to Los Angeles a robust mapping database that has been successfully used in New York, Chicago, New Orleans and elsewhere.

"Much like the Million Dollar Blocks projects in New York and Chicago, we are looking at the costs of incarceration by identifying the communities where the most has been spent to incarcerate residents," Lytle Hernandez said. Million Dollar Hoods differs from those projects in that it uses local jail data versus state prison data.

"We made this choice because Los Angeles operates the largest jail system in the United States and we wanted to better understand the impact of LA's jails and lockups," Lytle Hernandez said.

Lytle Hernandez pointed out that the dollar amounts posted on the Million Dollar Hoods map are conservative estimates owing to gaps in how the departments track this information. For example, the sheriff's department does not record the number of days spent incarcerated by people who may have posted bail but then returned to custody after trial. The



The Million Dollar Hoods website lets users examine incarceration data for dozens of areas in Los Angeles County. In this screen grab from the site, the red sections of Los Angeles County show where the most money is spent locking up people from that area.



Los Angeles County Men's Central Jail in downtown. Los Angeles operates the largest jail system in the United States.

data also do not capture information on prisoners transferred into the LA County jail system from city police departments or the California state prison system.

For many of the communities mapped in this project, the total cost of incarceration to the LA County jail system is actually much higher, Lytle Hernandez said.

Connecting data to personal stories

"The costs of incarceration are more than fiscal," Lytle Hernandez added. "So we are committed to also sharing the personal experiences that residents of LA's Million Dollar Hoods have had with arrest and incarceration, allowing for a fuller accounting of the social costs of incarceration, to families, communities and society at large."

The Million Dollar Hoods research team has partnered with the Los Angeles County Commission on Human Relations, which is currently holding a series of public hearings on policing in Los Angeles. At these hearings, the commission is inviting community members to share their experiences with law enforcement officers and agencies. The Million Dollar Hoods website hosts video footage of testimony from these hearings.

Geographic information systems technologists Yoh Kawano and Albert Kochaphum from UCLA's Institute for

Digital Research and Education coded and mapped the data and built the website. Robert Habans, a fellow at the UCLA Institute for Research on Labor and Employment, identified data trends and developed the formulas that revealed the rate of daily incarceration costs per prison bed.

Collaborating with law enforcement, advocacy groups and media

The team plans to work with LAPD and the sheriff's department to regularly add information to the maps. Million Dollar Hoods research partners also include several community-based organizations that are working to reform systems of incarceration in Los Angeles. Representatives from Critical Resistance-Los Angeles, Californians United for a Responsible Budget, Dignity and Power Now, and Youth Justice Coalition are collaborators in the Million Dollar Hoods project.

Million Dollar Hoods also partnered with Los Angeles public radio station KCRW for a six-episode series that launched Sept. 13. *Off the Block* examined how a trip to jail, even for just a few hours or days, can upend many lives, tracing the path from city block to jail block and back.

Lytle Hernandez will also release her new book, *City of Inmates: Conquest,*

Rebellion, and the Rise of Human Caging in Los Angeles, this spring. It is a history of incarceration in the city from the days of Spanish conquest to the outbreak of the 1965 Watts Rebellion.

In *City of Inmates*, she marshals two centuries of evidence to show that incarceration has historically and consistently operated to remove, banish and otherwise eliminate unwanted communities from the city. Across time, some of the communities most targeted for incarceration have been indigenous peoples, sexual minorities, nonwhite immigrants and African Americans.

UCLA's Million Dollar Hoods project is supported by the John Randolph Haynes and Dora Haynes Foundation, the UCLA Institute for Research on Labor and Employment, and the Institute on Inequality and Democracy at the UCLA Luskin School of Public Affairs.

@LEARN MORE:

Visit Million Dollar Hoods at <http://milliondollarhoods.org>

Listen to episodes of KCRW's *Off the Block* at <http://kcrw.co/2ejmN5t>

BRIDGING THE GAP IN HUMAN AGING

YEARLONG COURSE HELPS FRESHMEN BETTER UNDERSTAND THE AGING PROCESS AND OLDER ADULTS

By Dan Gordon

One of the first tasks freshman Suzannah Henderson was assigned in the course “Frontiers in Human Aging” called for her to reflect on ageism in America and the negative stereotypes about older adults that are everywhere, from the grumpy old man portrayed on TV to birthday cards that poke fun at dotty old folks.

For Henderson, who had not thought about ageism before, reflection turned into revelation. “I didn’t even know ageism was a thing, but I learned that it is,” said Henderson, who completed the yearlong course in June. “It was eye-opening, and that was just the beginning.”

“Frontiers in Human Aging” is one of 10 cluster courses offered to freshmen that are interdisciplinary, explore major issues of timely importance and are taught by teams of three or four distinguished faculty members.

Each year approximately 120 UCLA freshmen journey through “Frontiers in Human Aging,” learning about growing

old from multiple vantage points – biology, psychology, sociology, ethics, policy and public health — through lessons delivered by a wide-ranging group of faculty experts and from older adults themselves, via hands-on community service experiences.

Faculty from across campus

While many instructors are brought in as guest lecturers to cover the vast scope of disciplinary approaches to the study of aging, the course’s three core UCLA faculty members have connections to the UCLA Fielding School of Public Health, the UCLA Luskin School of Public Affairs and the UCLA David Geffen School of Medicine: Paul Hsu, adjunct assistant professor in epidemiology; Lené Levy-Storms, associate professor of social welfare and geriatrics; and Rita Effros, a professor of pathology and laboratory medicine who specializes in immunology.

“Our goal is to convey to students the concept of aging as a lifelong

A participant in the nonprofit Wise Adult Day Service Center in Santa Monica, California, talks to UCLA student Emma Skeie, who took the yearlong cluster course “Frontiers in Human Aging.”



UCLA freshmen are learning about aging and older adults in the classroom and from the elders themselves.

phenomenon, and to show students that there are multiple dimensions to the aging process, which is inherently interdisciplinary,” Levy-Storms said.

Students learn that there are positive aspects of aging, for example, the wisdom that comes with experience and the increased time older age affords to giving back to society, she said. The first-year students also gain a fuller appreciation of their elders through an assignment in which they are required to interview someone about his or her life.

“The students tend to forget that older adults were once young,” Levy-Storms said, “or that they will one day be old too.”

Students also learn about aging at the cellular level, including what is known and being investigated about the biological aging processes and the potential to manipulate them for better health. Issues are raised about how gender, race, ethnicity and social environment interact with aging. Ethical questions, economic concerns and intergenerational dynamics are explored. Students delve into aging-relevant policy, from Medicare to the implications of the Affordable Care Act for older adults. Psychological and social elements of aging are discussed, as are the differences among chronological, social and functional age. They find out about successful approaches to remaining mentally, socially and physically engaged later in life.

Hsu noted that nearly all of these discussions are guided by public health concepts, including the importance of prevention and health promotion and the role public health has had in the last century in increasing life expectancy in the U.S. by more than 30 years. “Many students haven’t really heard about



public health before,” Hsu said. “I try to introduce them to what it means to treat populations as opposed to individuals, including promoting immunizations and other strategies, as opposed to waiting for people to get sick.”

Beyond the classroom

Students also spend meaningful time interacting with older adults in the winter quarter through a five-week service-learning experience in which they are placed in agencies that serve elders, such as senior centers, assisted-living facilities and adult day care centers. The students keep journals where they reflect on their experiences and link them with classroom and book concepts.

The lessons can be poignant. Henderson spent her service-learning time at a senior living community, interacting with residents who have dementia. She found herself bonding with one older man who reminded her of her grandfather.

“He was a kind, soft-spoken person who would be reading his Bible when I came in,” Henderson said. “He was always eager to participate in conversation. He would talk about how he had done track and field when he was younger and how much he loved physical activity.”

But Henderson learned that people

with dementia commonly experience ups and downs in their cognitive and physical functioning. “One day I came in, and he wasn’t doing well at all,” she recalled. “He tried to stand up after lunch, and his knees buckled and he almost fell. It broke my heart to see someone I had really connected with struggling like that.”

Inspiring action

Nonetheless, Henderson came away from her year in the “Frontiers in Human Aging” cluster energized, to the point that she is now contemplating enrolling in UCLA’s gerontology interdisciplinary minor and ultimately pursuing a career working with older adults.

“When I was younger I really didn’t think about these things, but in college your perspective broadens, and you begin to become more analytical about the world,” she said. “Now I see older people and realize they are more than just grandparents; they are individuals with a wealth of knowledge, wisdom and life experiences to share.”

Levy-Storms said one of the unstated goals of the yearlong cluster course is that it will lead more students like Henderson to become interested in careers working with older adults or on elder-related issues. “There is such a need and so many opportunities, whether it’s in public health, medicine, law, policy or any other field you can think of,” she said.

The students aren’t the only ones who come away from “Frontiers in Human Aging” feeling energized. “You don’t typically encounter 18-year-olds who are interested in gerontology,” Hsu observed. “To see it in these students is inspiring.”

“THEY ARE MORE THAN JUST GRANDPARENTS; THEY ARE INDIVIDUALS WITH A WEALTH OF KNOWLEDGE, WISDOM AND LIFE EXPERIENCES TO SHARE.”

- Freshman Suzannah Henderson

CENTENNIAL CHAIR IN ASTROPHYSICS TO SPUR DISCOVERIES ABOUT OUR UNIVERSE

By Margaret MacDonald

The quest to discover how the universe works got a major boost thanks to Lauren B. Leichtman and Arthur E. Levine '73, who pledged additional funds to their existing endowed chair in astrophysics. Their generosity and leadership have enabled UCLA to establish the first-ever centennial chair (a \$5-million endowment) in the Division of Physical Sciences.

The Lauren B. Leichtman and Arthur E. Levine Astrophysics Chair, originally established in 2006, is held by world-acclaimed astronomer Andrea Ghez, a professor of physics and astronomy and director of UCLA's Galactic Center Group. The increased financial support from the centennial chair will bolster astrophysics research and imaging technology aimed

at discovering more about the fundamental nature of the universe.

Endowed chairs are vital to UCLA's ability to attract and retain world-class faculty and are a priority of the \$4.2 billion UCLA Centennial Campaign, which is scheduled to conclude in December 2019 during the university's 100th anniversary year. This is the third \$5-million chair to be received by the UCLA College.

"This historic chair opens up all kinds of possibilities for astrophysics research," said Miguel García-Garibay, dean of physical sciences. "It will provide a level of support that will allow faculty to address scientific questions no one else is asking yet."

Ghez joined the faculty at UCLA in 1994, attracted by UC's early investment

in and commitment to astronomy research. Ever since, she has used the Keck Observatory on top of Hawaii's dormant Mauna Kea volcano to study the rotational center of the Milky Way and the movement of thousands of stars close to this galactic center. Ghez, a 2008 MacArthur Fellow, uses novel ground-based telescopic techniques to remove the blurring effects of the Earth's atmosphere, producing the sharpest possible images of the center of our galaxy.

Understanding black holes

By measuring the orbits of stars at the center of our galaxy, she showed that an enormous black hole resides at the center of our Milky Way galaxy, some 26,000 light-years away from Earth, with a mass 4 million times that of the sun. This finding provided the best evidence yet that supermassive black holes exist in our universe. Ghez and her research team have opened a new approach to studying black holes and have revealed many unexpected mysteries about the role they play in the formation and evolution of galaxies.

"Lauren and Arthur have always understood what it takes to make the biggest leaps in science and astronomy," Ghez said. "I am incredibly grateful to them for their belief in me and in the importance of this work."

Ghez first met Levine and Leichtman not long after arriving at UCLA. As they got to know her and learned more about her work, they became convinced



Andrea Ghez

"Lauren and Arthur have always understood what it takes to make the biggest leaps in science and astronomy."

- Andrea Ghez

that additional financial support would propel her research to the next level. Ghez credits them with encouraging her to think on a much bolder scale.

Inspiring pioneering work

“Endowing a chair is more than writing a check,” said Levine, co-chair of the Galactic Center Group Board of Advisors and member of the Physical Sciences Centennial Campaign Committee. “It signals to the world that this community believes in the research being done in a given field — and the potential of that research to push the boundaries of knowledge.”

In 2012 Ghez was the first woman to be awarded the Crafoord Prize, otherwise known as “the Nobel for astronomy,” and in 2015 she received the Bakerian Medal from the U.K.’s Royal Society, the oldest scientific academy in continuous existence.

Leichtman said, “Arthur and I want to do what we can to unleash the potential of this research, but we are also very interested in the long-term impact. We expect our gift to continue to yield important discoveries long after we’re gone.”

Levine said, “It is important that Andrea’s work be embraced by the scientific community, and it has the added bonus of helping to attract other great scholars to UCLA.”

Longtime commitment to UCLA

Levine came to UCLA from his home state of New York and played tennis for a Bruin team that won two national championships.

“It was like I died and went to heaven,” he said of his arrival on campus. “UCLA was a wonderful experience for me, both socially and academically.”

Unsure of his major at first, he chose philosophy after taking a class taught by renowned activist and feminist scholar Angela Davis.

“I was blown away after my first class with her. She introduced me to a new way of thinking and seeing the world,” he said.

After a stint as an assistant to Motown boss Berry Gordy, Levine earned an M.B.A. from the UCLA Anderson School of Management and a law degree from Columbia University.



Arthur E. Levine



Lauren B. Leichtman

“UCLA is about creating opportunity for the faculty, the students and the community. It is about building for the future, whether in astrophysics, medicine or sports.”

- Lauren B. Leichtman

“Everything good in my life emanated from UCLA,” Levine said, noting that he and Leichtman first met at the law library on campus back in 1974. “For me it was love at first sight; she took a little longer.”

A Southern California native, Leichtman received her bachelor’s degree in psychology from California State University, Northridge, a J.D. from Southwestern University School of Law, and a master’s in law from Columbia University. She and Levine were married in 1979, and in 1984 they established Leichtman Levine Capital Partners (LLCP), a private investment firm with offices in Los Angeles, New York, Dallas, Chicago, London and The Hague. She is one of the first women to have managed more than \$7.5 billion in institutional investment capital.

Prior to founding LLCP, Leichtman practiced law for a decade, including three years with the Enforcement Division of the U.S. Securities and Exchange Commission. In 2006 she was

honored by the Southwestern Alumni Association as “Alumna of the Year.”

In addition to the Centennial Chair in Astrophysics, Levine and Leichtman have given generously to the UCLA David Geffen School of Medicine, the UCLA Anderson School of Management and UCLA Athletics (they endowed the first scholarship for the women’s soccer team). Leichtman is a lifetime member of UCLA’s Women in Philanthropy group and serves on the board of the UCLA Iris Cantor Women’s Health Center, where she and her husband are also endowing the Lauren B. Leichtman and Arthur E. Levine Chair in Women’s Health.

“UCLA is about creating opportunity for the faculty, the students and the community,” Leichtman said. “It is about building for the future, whether in astrophysics, medicine or sports.”

Learn more:

<http://www.galacticcenter.astro.ucla.edu/>

GIFT ESTABLISHES ENDOWED CHAIR IN HISTORY

Nickoll Family Chair awarded to renowned history scholar and UCLA faculty member

by Margaret MacDonald

History alumnus Ben Nickoll '86 was raised in a family in which giving back was the norm. Now he's giving back to his alma mater by establishing the Nickoll Family Endowed Chair in History, with a focus on women's history.

"I'm proud to have known Ben since my days as dean of Social Sciences," said Executive Vice Chancellor and Provost Scott Waugh. "His professional career, values and character are testaments to the importance of a liberal arts education."

The inaugural chair holder is renowned historian Brenda Stevenson, professor of history and of African American studies at UCLA.

History chair Stephen Aron said the gift would bolster the department's efforts to attract and retain world-class faculty like Stevenson, whose research focuses on the history of slavery in the U.S. and Atlantic world, particularly of enslaved women.

"With this gift, Ben Nickoll signals his belief in the enduring value of a



Ben Nickoll

history degree, of excellent teaching, and of studying the past to shape a better future," Aron said.

Nickoll grew up near UCLA, so the university was a familiar fixture in his childhood. He recalled skateboarding through campus, hanging out in Westwood and attending basketball games with his dad at Pauley Pavilion. His parents were active in the local community.

"They stood up for what they believed and gave to causes where they could have an impact," he said.

An accidental history major

When Nickoll first enrolled at UCLA, he had no idea what he wanted to study.

"Then I took a class taught by professor Roger McGrath, a gifted storyteller who brought historical characters and events to life," Nickoll said. "I was hooked and became a history major soon after."

Nickoll is founder and managing partner of El Faro Partners, an investment firm focused on real estate, private equity, credit and agriculture. He serves on the history department's Board of Advisors and is a founding member of the board of the Fink Center for Finance and Investments at the UCLA Anderson School of Management.

"My wife, Chrissy, and I believe in focusing the majority of our energy in our local communities, not just financially, but also with

action when possible," Nickoll said.

He felt the time was right to make a major gift to his home department at UCLA.

If the liberal arts and subjects like history continue to be overlooked in favor of the sciences and engineering, he said, students might not develop a sufficiently broad, informed worldview.

"I believe the study of history is relevant to all aspects of life," he said. "Take the investment world — an investor needs to understand context and how elements affecting past performance can affect a company today and in the future."

Stevenson said the Nickoll chair would allow her to take her work to a different level.

"Thanks to the Nickoll chair, I'll have the resources to undertake larger projects more efficiently and expediently," Stevenson said. "I'll be hiring undergraduates to do a long-term project that deals with the history of racial violence in America. Private funding is so important for research initiatives that make positive contributions to our lives, to the world and to educating students."

Stevenson is the author of several books, including *Life in Black and White: Family and Community in the Slave South* and *The Contested Murder of Latasha Harlins: Justice, Gender and the Origins of the L.A. Riots*.

Learn more: <http://www.history.ucla.edu/content/giving>



Brenda Stevenson

NURTURING FUTURE LIFE SCIENTISTS

Alumna's gift will support a student in the life sciences for four years

by Margaret MacDonald

Thanks to a generous gift from Phyllis Marell '46, a deserving UCLA student will receive tuition assistance and summer research stipends for four years.

The UCLA alumna and philanthropist directed her gift to the Dean's Life Sciences Scholar's Award program, part of COMPASS (Creating Opportunities for Mentorship and Providing Access for Students in the Sciences).

Dean of Life Sciences Victoria Sork launched COMPASS in 2013 to help ensure that future scientific leaders represent the nation's diverse population and contribute the full range of perspectives to scientific and medical research.

Sork said that targeted support is crucial to UCLA's efforts to improve retention in the sciences, particularly among underrepresented students. Nearly 50 percent of UCLA students come from families with annual incomes of less than \$50,000, and more than a third are the first in their families to attend college. COMPASS is designed to help students successfully navigate the pathways to a science degree and to careers in medicine or science.

"Phyllis Marell's gift could not have come at a better time, as we are focused on increasing student support," Sork said. "She's giving a talented student an amazing opportunity: the support and confidence to succeed as a scientist."

COMPASS students work in labs alongside faculty mentors who understand the challenges these students face.



Phyllis Marell pictured with longtime UCLA philanthropist Morton La Kretz '48 at the College's Centennial Campaign event in April.

Removing barriers to education

Marell said that she believes a world-class science education should be available to all students, not only to those whose parents can afford it.

"We are one country, and the more educated everyone is, the better off we will all be," Marell said. "As a public university, UCLA is the perfect place for a program like this."

Her gift will relieve one student's financial burden by providing four years of tuition assistance to fill the gap between financial aid and the cost of attending UCLA, as well as stipends that allow the student to do research during the summer — eliminating the need to work part-time. Research experience is increasingly important as it not only enhances students' skills but also improves retention in the sciences and provides a competitive edge for graduate school admission.

Marell was born in New York and moved to Los Angeles as a child. UCLA made an impression on her even then,

and she remembers telling her mother, "That's where I'm going to go to college." About 10 years later she became a Bruin, majoring in political science.

"Back then the campus looked very different," Marell recalled. "I lived in a sorority house on Hilgard and we used to walk across what we called 'the Gully' [on south campus] to get to and from class."

She went on to study law at St. John's University in New York and soon after met her future husband, Saul Marell. They moved to California and started Seabord Industries Inc., a window and glass manufacturing company. She served as chief financial officer of the company after her husband's death in 2000, and dissolved it in 2015. The couple's three children all went to UCLA and became lawyers. At their urging she took — and passed — the California bar exam at the age of 56.

Learn more: <https://giving.ucla.edu/Standard/NetDonate.aspx?SiteNum=390>

FOUR OLYMPIANS GO FOR BLUE AND GOLD AS NEW BRUINS

Three medalists started classes this fall, with a fourth Olympian enrolling this winter

By Rebecca Kendall

During the 2016 Olympic Games in Rio, American gymnast Madison Kocian was part of the nation's much-loved "Final Five," named in honor of retiring coach Martha Karolyi.

Now as a member of UCLA's incoming class, the two-time Olympic medalist is joining UCLA's "Freshman Four," a squad of athletes who competed in Rio this summer and are becoming Bruins this academic year.

Collectively, the four first-time Olympians, three of whom are medalists, represented two nations and came home with four medals in gymnastics, soccer and water polo.

This fall, Kocian, a gold and silver medalist who was the first Bruin student-athlete to stand on the podium in Rio, was joined by Maddie Musselman, who captured gold in water polo with Team USA, and Jessie Fleming, a member of Team Canada's bronze-medal-winning soccer team. This winter, Mallory Pugh, 18, the second youngest Olympian in the history of U.S. women's soccer, will also start classes.

Each will compete for the Bruins in their respective sports, and each is looking forward to immersing themselves in the student experience.

They are among 9,700 new undergraduate students attending UCLA this year.

Manage your time and stay positive

Kocian, 19, said she chose UCLA because of its reputation as one of the world's leading universities and its standing as home to one of the nation's best gymnastics programs.

A day after arriving at UCLA, Kocian was already hard at work in the gym with her new teammates and Coach Valorie Kondos Field, who has coached the Bruins to six



Olympic gold medalist water polo player Maddie Musselman is one of four Olympians who are starting their first year at UCLA.

NCAA national championships and 13 PAC-12 championships over the past 23 years.

Kocian said that, although she is ready to help UCLA win another national title, she is equally excited to resume her life as a student.

"I deferred my enrollment at UCLA for a year so I could train for the Olympics," said Kocian, who earned a gold medal in the women's team competition and a silver medal on the uneven bars. "I'm looking forward to the balance of school and gym — not gym 24/7 like I've been used to for the past year and a half."

Although she has yet to declare her major, Kocian said she is interested in becoming a pediatrician.

The gymnast said she plans to put her time management skills to good use as she transitions back into student life. Being prepared and not procrastinating have helped her keep stress levels

in check as an athlete and now as a student. As an elite athlete, she said she also recognizes the importance of maintaining a positive attitude, regardless of whatever challenges life may present.

"Before a competition, I keep positive thoughts in my head. You can transfer that same mindset into taking a final. ... It's important to know that you're prepared, that you've studied and that you've done everything you can to be your best."

Resiliency drives success

Fellow freshman and Olympic athlete Maddie Musselman, a life sciences major who aspires to work in the medical field, is no stranger to the UCLA campus. Her sister, Alex, played water polo as a Bruin for four years before graduating with a degree in sociology last June.

"I got an inside look at UCLA before coming here, and I already felt

like part of the team and part of the UCLA family,” said Musselman, 18.

Like Kocian, she is excited about competing for the Bruins and enjoying her new life as a college student.

“I love school,” said Musselman, whose time management skills helped her successfully complete her remaining online high school classes while she was training for Rio.

“UCLA offers not only the academic lifestyle that I want, but sports here are competitive, and the culture of UCLA is something I want to be a part of,” Musselman said. “It is a perfect fit for me.”

Musselman said she believes the resiliency she’s developed throughout her years as a water polo player will help her become a successful university student.

“Ever since I’ve started playing sports, I’ve experienced failure, especially at the highest level. And being in college won’t be easy. In sport I’ve learned to be resilient, fight back and want to succeed. Remaining resilient and working to be better than I was the day before — those are qualities that are going to be important for me.”

Learn from mistakes, then move on

Resiliency and perseverance are also qualities that Canadian midfielder Jessie Fleming, 18, knows well. Her team went into the Games ranked 10th in the world and left Rio with a bronze



Freshman Jessie Fleming, now playing for the Bruins women’s soccer team, helped set up the Canadian team’s game-winning goal in its bronze-medal game against Brazil.

medal. Fleming helped set up the Canadian team’s game-winning goal in its bronze-medal game against Brazil.

“Here at UCLA, I want to definitely win national championships, and, along the way, become a better player and enjoy an international style of play,” Fleming said.

The materials engineering major has a particular interest in green architecture and designing materials and products using new technologies, including 3-D printing.

“Growing up, I was always interested in architecture and the environment. ... I was attracted to UCLA’s culture of excellence across all disciplines of academics. And because there’s flexibility and creativity within my chosen program, I can go my own way and explore what I want to do and where I can take my degree.”

She said that time management and communication are tools she will use to excel as a student-athlete.

“That’s the great thing about universities,” Fleming said. “They have support systems in place academically, athletically and psychologically. It’s important when you’re stressed not to be afraid to ask for help. I think that’s something a lot of athletes aren’t necessarily good at because we want to be independent, and we think we can do everything on our own.”

Fleming said it’s also important for athletes and students alike to learn from their mistakes and not focus on things that can’t be changed. “Life goes on. You shouldn’t dwell on mistakes or losses or poor marks. Time keeps moving, and you can’t get stuck on the past. Just stay excited for the future while learning from the present. Just keep moving.”



Gymnast Madison Kocian has been training with her new UCLA teammates and coach Valorie Kondos Field, who has coached the Bruins to six NCAA national championships.



Jeffrey Zink in his lab at UCLA.

“The happiest people have jobs that don’t feel like work. That’s why we scientists work on Saturdays, because it’s fun!”

IN CONVERSATION WITH PROFESSOR JEFFREY ZINK

By Margaret MacDonald

Distinguished professor of chemistry Jeffrey Zink has pioneered the use of multifunctional nanoparticles and molecular machines designed to deliver drugs to the site of a tumor or infection — a scientific innovation poised to revolutionize the treatment of cancer and infectious diseases. With more than 400 published articles, he’s in the top 1 percent of the world’s most frequently cited authors in chemistry.

Zink joined the faculty of the Department of Chemistry & Biochemistry in 1970. With Helo, his wife of 48 years whom he met while she was studying bacteriology at the University of Wisconsin, he recently established the Jeffrey and Helo Zink Endowed Professional Development Term Chair in Chemistry.

When did you get hooked on chemistry?

As a kid I had a chemistry set and performed experiments in our basement that probably wouldn’t be allowed today! I almost chose a career in biology because I’m so interested in the natural world, especially birds and wildflowers. But I was drawn to the creativity and logic of chemistry, the problem-solving side.

Why did you come to UCLA?

I got an offer straight out of graduate school. When I flew out for interviews, I called my wife and told her, “This is the place. I’m going to take it.” She asked what kind of salary I’d been offered, and I told her I forgot to ask! She still teases me about that today.

What’s special about the Department of Chemistry & Biochemistry?

A department isn’t about bricks and mortar or labs; it’s about the people. Our department’s stellar reputation is due to the faculty and their work, and this attracts high caliber graduate students. We also have a very collaborative spirit. At UCLA people talk to one another, and through UCLA’s California NanoSystems Institute and Jonsson Comprehensive Cancer Center,

I’ve collaborated closely with many colleagues from different fields.

What’s so revolutionary about your work?

With standard chemotherapy, you have to inject a large concentration of the drug into the veins to have an effect on the tumor, causing myriad side effects. Instead, we’re putting the drug inside a nanoparticle, which carries it without leakage directly to the tumor. Then, in response to an external stimulus like light or magnetic field, the nanoparticle acts like a valve to release a large concentration of the drug, minimizing side effects and maximizing efficiency. For infectious disease, we’re designing these nanomachines to be carried by white blood cells to deliver antibiotics straight to the infection site.

What’s your goal?

What’s driving me is seeing these nanomachines through clinical trials and ultimately benefiting patients. I’d really like to see this fundamental scientific project fulfill its potential as a useful biomedical application that will help humanity.

Why did you establish the term chair?

I really wanted to give back. This term chair will be so helpful for

young faculty starting their careers, which can be a really tough time. There are a few starter or career development grants, but they’re hard to get. I thought it would be wonderful to provide funds to help successive generations of faculty at the start of their careers. The department can also use the chair as a retention tool if someone’s being lured away by another institution.

What do you do when you’re not in the lab?

I’m an amateur birder, and I’ve hiked up and down the whole south and central Sierra Nevada. My wife and I still hike a lot in the local mountains and deserts, and we also enjoy attending concerts of the LA Philharmonic. And I also swim at the Sunset Canyon pool.

Advice for students today?

The happiest people have jobs that don’t feel like work. That’s why we scientists work on Saturdays, because it’s fun!

Final thoughts?

I couldn’t have done all of this without my wonderful wife, Helo!

Learn More:

For more on professor Zink, download the UCLA College App at www.college.ucla.edu



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MICHELLE CRASKE

PROFESSOR OF PSYCHOLOGY AND OF PSYCHIATRY AND BIOBEHAVIORAL SCIENCES
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“WE HOPE TO CURE DEPRESSION. WE HOPE TO
CURE POST-TRAUMATIC STRESS DISORDER. WE
HOPE TO CURE ADDICTION. AND WE ARE CLOSE.”

— Deans of the UCLA College announcing a \$150 million initiative to modernize psychology facilities