Making a Better World

The College of Letters and Science is committed to delivering on the promise of liberal arts and sciences education and curiosity-driven research. Both in our traditional fields and in new degrees and disciplines, our faculty and programs are dedicated to distinguished research and creative excellence, engaged learning, and outcomes that change our world. Coming from more than 20 countries and often the first in their families to attend college, our students bring new ways of looking at the world to UC Davis. College of Letters and Science alumni enter the world ready to define the careers of the future and bring their energy, creativity, and expertise to solving the world's most pressing challenges.

**OUR UNIVERSITY**

2nd among “Affordable Elite Colleges” (Washington Monthly)

3rd among all American universities “doing the most for the American Dream” (The New York Times College Access Index)

5th among public universities doing the most for student outcomes and academic resources (The Wall Street Journal/ Times Higher Education)

**OUR COLLEGE**

55 MAJORS

61 MINORS

More than 14,000 undergraduates have a major in L&S.

**OUR FACULTY**

910

3 MacArthur “Genius” fellows

15 Members of the American Academy of Arts and Science

39 Guggenheim fellows

**OUR STUDENTS**

44% of L&S undergraduates are first-generation.

82% from California

3% from other states

15% international (71% of fall 2019 international UC Davis applicants were to L&S majors)

**OUR ALUMNI**

Where our alumni live

CA 83%

International 1%

Other states 16%

A GLOBAL EDUCATION

In 2018-19, 40 faculty taught L&S courses for study abroad programs in 24 countries. More than 300 L&S students studied abroad in 40 countries (half of all UC Davis study abroad participants):

Argentina, Australia, Bhutan, Bolivia, Chile, China, Cuba, Czech Republic, Denmark, Ecuador, France, Germany, Ghana, Guatemala, Hong Kong, Iceland, India, Ireland, Israel, Italy, Japan, Jordan, Korea, Mexico, Netherlands, New Zealand, Russia, Peru, Poland, South Africa, Senegal, Singapore, Spain, Sweden, Switzerland, Taiwan, Thailand, United Kingdom, and the USA.
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From the Dean

The Future Built Here

UC Davis has always been known for its commitment to making the world better. Of course, that effort starts with providing access and opportunity to a broad range of students. Recently, *Money Magazine* ranked our campus in the nation’s top five “best colleges” for quality of education, affordability, and outcomes. *The New York Times* designated UC Davis third in the nation for “doing the most for the American Dream,” and *Washington Monthly* ranks us in the top 10 of American universities for promoting social mobility and public good.

At the College of Letters and Science, we help push the cutting edge of knowledge and progress in virtually every facet of life. Whether it’s launching the funk art movement of the 1960s or unravelling the mysteries of the universe, we harness the Aggie spirit of service and innovation to broaden and deepen our impact on the world.

This issue of the *College of Letters and Science Magazine* illustrates how our faculty, students, and alumni combine scholarly expertise and productivity with a passion to tackle this century’s biggest challenges with bold, new ideas.

Our lead article reveals what our faculty are uncovering about one of the most promising and vexing trends in internet technology: bots. We share stories about alumni who work at the World Bank, write award-winning fiction, and shine brightly in art, film, and media. We highlight some of the cool classes that students can take to stretch their perspectives and position themselves to think differently about their opportunities. An article on the College’s “Big Ideas” highlights our aspirations and priorities for the next several years.

This fall, we welcomed the class of 2023 into the College: 2,400 young adults eager to make their mark on the world.

I believe there is no better place for this generation of Aggies — our “Gen Z” students who were born between 1996 and 2012 — to build a foundation for the future.

The College of Letters and Science can help them make it so.

Elizabeth Spiller
Dean, College of Letters and Science

DEAN’S ADVISORY COUNCIL

The Dean’s Advisory Council is the primary volunteer advisory body for the College of Letters and Science and is composed of civic, business, and education leaders drawn from the College’s alumni, donors, emeriti, and friends. Council members support and advocate for the advancement of the College and advise the dean on planning and implementing programs and initiatives.

Brian Burwell, ’72, Chair
Allison Lisbonne Amadia, ’89, Vice Chair
Kevin Bacon, ’72
Mark Bavoso, ’83
Jonathan Clay, ’94
James David Cone, ’10, ’13
Joan DePaoli
Dory Shaw Ford, ’79
Lois Goss, ’88
Jackson R. Gualco, ’78
Bret Hewitt, ’76, ’83
Diane Loranger, M.D.
Tim McCarthy, ’73
Curtis Rach, ’87
Nancy Roe
Robert Rotstan, Jr.
Joan Sallee
Patrick Sherwood, ’87
Roy Shlemon
Lisa Walsh, ’78
Student Ambassadors

Personalizing the Aggie experience

Every fall, thousands of college-bound students put UC Davis on their wish list. Some know exactly what they want to study, but most are searching for just the “right fit” — a quest that includes exploring possible majors and all aspects of student life. Who better to serve as sherpa on that journey than a current Aggie?

Our Ambassadors of Letters and Science (ALAS) work directly with prospective students and families, as well as peers, College leadership, and the community at large, to represent all the College has to offer.

“Ambassadors play a critical role in our outreach efforts,” said Mark Foncannon, director of student recruitment and career development for the College, who launched the program in 2019. “Their enthusiasm about sharing their Aggie experiences at events, information sessions, and tours can make all the difference for students sorting through their options. We simply couldn’t connect with as many individuals, especially on such a personal level, without them.”

Khalil Malik, a second-year student double majoring in communication and political science–public service, said he hopes to smooth the transition to Aggie life. “I had a hard time finding resources my first year,” Malik said. “As an Ambassador of Letters and Science, I can help make sure new students don’t have the same challenge.”

Read more about this year’s ambassadors at lettersandscience.ucdavis.edu/ambassadors.

Front row from left: Itzelth Gamboa (communication and sociology), Scott Hornbuckle (medieval and early modern studies), Mark Foncannon (staff coordinator), Quilvio Hernandez (economics, and mathematical analytics and operations research), Priyal Thakral (international relations and managerial economics). Back from left: Zach Luis (applied mathematics and economics), Beitong Li (economics and mathematics), Khalil Malik (communication and political science–public service), Metzli Montero (applied physics), and Angie Ni (computer science). Not pictured: Ellen Chu (pharmaceutical chemistry) and Leaann Taylor (linguistics).
Rodomontade  
rä-do-mən-tād  
n. boastful or inflated talk or behavior  
v. talk boastfully

‘Time’ Trailblazer

Comedian Hasan Minhaj (B.A., political science, ’07) was named to Time magazine’s list of the 100 most influential people of 2019. A former senior correspondent on The Daily Show, Minhaj hosts his own weekly talk show, Patriot Act with Hasan Minhaj, on Netflix. His first stand-up comedy special, 2017’s Homecoming King, won a Peabody Award and was filmed at the Robert and Margrit Mondavi Center for the Performing Arts at UC Davis.  
(Photo by Eric Hobbs)

MacArthur fellow

Sarah Stewart, a professor in the Department of Earth and Planetary Sciences who combines theory and experiments to understand how planets form, was honored with a 2018 MacArthur Fellowship. She is one of three College of Letters and Science faculty member who have received a five-year “Genius Grant.”

New minerals named for faculty in the Department of Chemistry. Discovered in Utah’s old uranium mines, “caseyite” and “navrotskyite” honor the geochemical contributions of Professor William Casey and Distinguished Professor Alexandra Navrotsky.

GOING PRO

Aggie football standout Keelan Doss (B.A., sociology, ’18), who set campus records for touchdowns and all-purpose yards, is now a wide receiver with the Oakland Raiders. Three other Aggies — all hailing from the College — were invited to NFL spring rookie minicamps: Mason Moe (Philadelphia Eagles), Vincent White (Denver Broncos), and Isiah Olave (Tampa Bay Buccaneers).

Number of times in the past three seasons that UC Davis women’s basketball coach Jennifer Gross (B.A., sociology, ’97) has been named Big West Conference Coach of the Year. She has led the team to 97 victories, four postseason appearances, three conference championships, and a conference tournament championship.
Pin that

A compostable diaper created by students for a biodesign course won a 2019 Community Choice Prize in the Design Education Initiative category of Core77 Design Awards. The Sorbit Diaper — made from bacterial cellulose, a kombucha byproduct — was also runner-up in the 2018 Biodesign Challenge competition at the Museum of Modern Art in New York.

6

The number of Marvel Cinematic Universe movies that alumni Christopher Markus and Stephen McFeely have written scripts for — most recently, Avengers: Endgame. The screenwriting duo earned their master’s degrees in English in 1996.

Cheeto, the pudgy physics cat, was catapulted to worldwide fame this past spring on social media after funny signs asking people not to feed him went viral.

YOUR GUIDE TO THE UNIVERSE

A new IMAX movie, Secrets of the Universe, stars physics professor Manuel Calderón de la Barca Sánchez as the viewers’ guide inside the biggest machine ever built: the Large Hadron Collider at CERN in Switzerland. Scientists use the collider to probe the tiniest particles in the universe.

“Evolution isn’t a progression. It’s about how well organisms fit into their current environments.”

Lynne Isbell, professor and chair of the Department of Anthropology, in a July 14 LiveScience article, “Why Haven’t All Primates Evolved Into Humans?”

“This is a very strange animal.”

Ryosuke Motani, professor in the Department of Earth and Planetary Sciences who, with colleagues, discovered a fossil of a marine reptile with a bill like a platypus.
From mechanical flowers to moon clocks, there's no telling what projects may emerge from students in the class “Join the Maker Revolution.”

The maker movement began in the early 2000s in the Bay Area and emphasizes do-it-yourself design and building across the arts, engineering, and sciences. “The maker movement is something I’ve been hearing about, and I figured this was a great way to get involved,” said Robert Fox (B.A., English, ’19).

Taught by Professor Shirley Chiang — an experimental physicist who often engineers her own instrumentation — the first-year seminar draws undergraduates who have a desire to design, create, and discover. Sometimes their projects solve a practical problem. Other times, curiosity and imagination are the motivators. Whatever the idea, the class fosters problem-solving, communication, and collaboration among its students.

During class, Chiang doles out advice as students learn to work with soldering irons, 3D printers, and open-source electronic hardware like the Arduino microcontroller.

“It’s very hands-on. It’s almost like an art class,” said Quynh Tran, a third-year neurobiology, physiology, and behavior major. “It brings me back to playing with Legos. This is next-level Legos.”

— Becky Oskin
Steeped in Tea
Seminar gives students a wide view of world’s most consumed brew

From a trip to the Consulate General of Japan in San Francisco, to tea tasting, to lectures given by an art historian, chemist, nutritionist, farmer, librarian, and professor of Japanese literature, the seminar “Global Tea Culture and Science” introduces students to the rich and intersectional world of tea.

The first-year seminar, open to all undergraduates, is part of the larger Global Tea Initiative (GTI) in the College of Letters and Science. Launched in 2015, the GTI brings the university’s premier research in agriculture, health, science, humanities, and social science to bear on the study of tea.

In addition to offering the seminar, conducting multidisciplinary research on tea, forging partnerships with industry, and hosting an international conference each year, the GTI aims to provide opportunities for students to study tea and make career connections to the wide range of industries engaged in tea.

The focus on tea has sparked interest from students in many disciplines, who have formed the Global Tea Club. And an M.F.A. candidate in design, Harold Linde, received a $20,000 grant from The Green Initiative Fund (TGIF) to design and build an immersive Tea Experience Lab on campus.

“We’re excited to move this initiative forward,” said Katharine Burnett, associate professor of art history, GTI’s founding director, and a scholar of Chinese art and culture. “By bringing together UC Davis’ famed programs in agriculture, health, and the sciences with its remarkable strengths in the humanities and social sciences, GTI is creating something that no other campus can do, or do so well.”

To date, over 40 UC Davis faculty from disciplines across campus are engaged in the project, and several teach during the quarter-long seminar.

For more information, visit globaltea.ucdavis.edu.

The Global Tea Club, formed by students from a range of majors, co-sponsors Tea and Conversation events in the Arboretum.

Cool classes that make you want to go back to school

Writing and Creating Children’s Books to Teach Science and Inspire Curiosity
Explore how to incorporate science details and the scientific method in children’s literature, promote curiosity within stories and art, and write and create books for a young audience.

Tightwire Walking and Thinking
Learn basic tightwire technique, read philosophers and poets — such as Friedrich Nietzsche and Jean Genet — who were fascinated with tightwire artists, and look at legendary high-wire crossings and their sociohistorical contexts.

The Archaeology of Mummies
Study the scientific method in archaeology, and how techniques such as stable isotope analysis, ancient DNA, and parasitology contribute to the study of mummies.

*Course descriptions from UC Davis First-Year Seminars Listing 2018-19.
Eldridge Moores saw through time and space. He was the first to realize North America and Australia were once linked in an ancient supercontinent, and to recognize remnants of ancient ocean crust in the mountains of Vourinos, Greece.

A field geologist at heart, Moores knew there was no better classroom for teaching geology than the outdoors. He founded the UC Davis summer field course in geology, still going strong after more than 50 years.

“Eldridge taught me that you should always be looking to solve a problem in the field, not just walking along looking at rocks,” said J. Curt Kramer (B.S. ’68, Ph.D. ’76), professor emeritus of geosciences at the University of the Pacific, who was one of the first teaching assistants for the field course.

Moores’ death, on Oct. 28, 2018, occurred in the middle of his favorite pastime — sharing his knowledge and excitement about geology on a field trip to the Feather River in Northern California.

Moores’ legacy extends well beyond academia through his efforts to elevate public awareness of geology. He and his wife, Judy Moores, introduced thousands of people to California geology through their field trips. One of the many was author John McPhee, who featured Moores in the Pulitzer Prize-winning Assembling California: Annals of the Former World.

Moores used the attention from the books to highlight his opinion that we must understand our planet to persist as a society. He ended every email with a quotation from Will Durant: “Civilization exists by geologic consent, subject to change without notice.” This has become the informal motto of the department he called home.

— Becky Oskin

Support Student Field Work

A gift to the Eldridge and Judy Moores Field Geology Fund supports students at both the undergraduate and graduate levels participating in independent and department-sponsored field excursions in California and beyond. Go to give.ucdavis.edu/GELA/123282.
Do you remember why you picked your major? Do you ever wonder how students today select theirs? One difference for Aggies today is they have a lot more options to consider — especially in the College of Letters and Science.

The College now offers 55 majors — with new degree offerings in recent years that include pharmaceutical chemistry, cognitive science, and cinema and digital media.

A glance at UC Davis course catalogs over the past five decades gives a time-lapse view of degree offerings as new disciplines arise, established fields evolve, and the needs of students and society change.

“Our curriculum is vital and changing, but the core skills of critical learning and thinking remain at the heart of all our majors,” said Elizabeth Spiller, dean of the College.

Many longstanding majors remain as relevant to students as ever. Since 1995–96, economics jumped from 14th to the fourth most popular major at UC Davis in 2018–19. Psychology moved in that same period from No. 4 to No. 1.

Employers say they are looking for workers with skills associated with the liberal arts and sciences. Earlier this year, a LinkedIn report listed creativity, persuasion, collaboration, adaptability and time management as the soft skills that companies are looking for the most.

And UC Davis’ popular “What Can I Do with My Major?” blog includes numerous career success stories of alumni from a wide array of degrees. What’s your major-to-career story? What advice would you give to Aggies today on choosing a major? Email us at lettersandscience@ucdavis.edu, and we’ll share your stories online, on our social channels, and in the next magazine issue.

— Kathleen Holder
In 1969, student Robert Oden was on the front lines campaigning for UC Davis to recruit a more diverse student body, faculty, and staff and to establish ethnic studies programs. African American, Asian American, Chicana and Chicano, and Native American students, along with like-minded faculty and staff, were among the first in the nation to call for such changes.

The drive for ethnic studies programs started with protests at California State University, San Francisco, spread to UC Berkeley, and on to Davis. The proposals were met with support from administrators in part because of the way the students approached them.

“We were very organized and disciplined,” said Oden, a longtime professor of political science at CSU Sacramento. “We were able to get what we wanted faster than at other schools, and I believe it had an impact on the whole UC system. Going to campus today, I feel so good about what I accomplished there.”

The work done by Oden and others 50 years ago continues to attract and benefit students from many backgrounds and interests, providing a strong academic grounding and also a sense of community. A recent beneficiary is Tina Curiel-Allen, who earned a bachelor’s degree in Chicana and Chicano studies this year.
“Before coming to UC Davis, I’d only had one teacher or professor who represented themselves as Chicanx,” she said. “I didn’t know how important that was until I got to a large place like UC Davis.”

At UC Davis, she received academic and personal support not only from Chicana and Chicano studies faculty, but from others as well, especially in African American and African studies.

“I felt that my entire life and experience was invited into the classroom,” said Curiel-Allen, a staff member at Fathers and Families of San Joaquin, an organization promoting justice, health, and family building. “The professors created an environment of openness. Becoming a major in the department was also a way of supporting them and the work that started 50 years ago.”

**Evolving with the times**

The ethnic studies programs developed slowly and it took many years to reach full staffing and departmental status. African American studies was the first ethnic studies major at the university and Native American studies was the first such program in the UC system. In 1998, UC Davis became the second university in the country to offer a doctorate in Native American studies.

All the programs have evolved with the times. Chicana and Chicano studies originally focused on the Mexican American experience; it now has a more hemispheric approach. Asian American studies looks at groups from the Spanish-speaking Philippines to the Middle East and everywhere in between. What was once Afro-American studies now includes faculty with expertise in the African diasporic experience around the globe. Native American studies encompasses research from the Arctic to South America. The programs provide academic and practical explorations in cultural understanding, political and social issues, law, the environment, and visual art, music, dance, and literature.

“Fifty years after their formation and the articulation of a vision by student and faculty activists, the ethnic studies departments at UC Davis continue to develop practices of cultural understanding and social critique,” said David Michalski, the social and cultural studies librarian who curated an exhibit on UC Davis ethnic studies.

“As relevant as ever, they play an important role in the university’s renewed efforts to produce community-engaged scholars, and to cultivate knowledge in service of the public.”

– Jeffrey Day

Visit [lettersandscience.ucdavis.edu/ethnic-studies-50](http://lettersandscience.ucdavis.edu/ethnic-studies-50).
ne of the toughest courses Shawn Sullivan ever took at UC Davis was an art class with Professor Lucy Puls. “I had to prove to myself I could do it,” said Sullivan (B.A., art, ’91), who came to UC Davis in 1988 on a football scholarship. “It challenged me to know about myself, figure things out, and accept who I am.”

Several years after graduating, he stopped by to see Puls, but she wasn’t in. He left a note. When he came by a decade later, as director of K9 Studios for animation at Sheldon High School in Sacramento, she still had his note.

Those kinds of close relationships develop between students and faculty — and among students — in the undergraduate art studio program. Students work hard, often deep into the night and early morning hours, learn how to collaborate, take and give criticism, constantly move outside their comfort zones, and build confidence.

UC Davis is known for famous artists who have taught here — Wayne Thiebaud, Robert Arneson, and others — and artists who earned master of fine arts degrees, including Deborah Butterfield and Bruce Nauman. Artists are often shaped by and strongly associated with where they earned their M.F.A. Both faculty and alumni say an undergraduate art degree shapes a person holistically, regardless of whether they continue making art.

“The art program was immersive in the way that I needed it to be and allowed me to access many departments.”

– Oakland artist and alumna Anna Valdez

Thinking like an artist

Because UC Davis is a research institution, studio art professors are engaged in research that can express itself in many ways: creating noteworthy art, exhibiting regularly, and presenting and lecturing at universities, museums, and conferences. They show students how to engage in a serious and sophisticated art practice.

“The program provided a terrific example of how to think about being an artist,” said Caetlynn Booth, (B.A., art, ’02) who creates art in Queens, New York. “There was a seriousness and intellectualism, and an environment supportive of critical thought. I learned how to not only make artwork, but learned a lot about my own motives and interests behind my studio practice.”
Oakland artist Anna Valdez double majored in art and anthropology (B.A. ’09) and found the program was open to her cross-disciplinary interests.

“The art program was immersive in the way that I needed it to be and allowed me to access many departments,” Valdez said. “My experience echoed my desire to have a holistic approach to the visual arts.”

**More than art making**

“When I was at UC Davis, it was a community and people were working 24/7,” said Daniel Trejo (B.A., art and art history, ’13), who makes ceramic sculptures. What Trejo learned in the art department and ceramics studio transferred to his job at a state agency that oversees medical facilities. “You get the organization skills to deal with things that don’t go the way you planned,” he said. “That happens all the time in ceramics.”

Others echo this.

“Above any of the technical skills I gained in the art department, learning to take time with my thoughts and choose my words carefully have proven the most useful,” said Theo Elliott (B.A., art, ’11), director of RATIO 3 gallery in San Francisco. “The most happily employed people I know are adaptable. They listen well and can express themselves when ideas are abstract, unfamiliar, or weird.”

Emmeline Yen (B.A., art, ’12) found her calling managing art collections. “My studies at UC Davis prepared me for the diverse art-related jobs I’ve held — teaching art, working in artist Jeff Koons’ stone studio, and registration and collections within museums,” said Yen, assistant registrar at the Los Angeles County Museum of Art. “What I valued the most from the art program was its flexibility to explore different facets of art-making, and the ability to tailor one’s course selection to fit specific interests.”

Exposure to new art and ideas led Liv Moe (B.A., art, ’05) to ask, “Why doesn’t Sacramento have this kind of art?” She became founding director of the Verge Center for the Arts in Sacramento.

“I don’t think I’d be doing this job if I hadn’t gone to UC Davis,” she said.

**Challenges and friendship**

The tradition continues with students like Chastine Leora Madla, a fourth-year art studio and art history double major.

“As a student you tend to undervalue your skills and your work,” she said. “(Some professors) really let you know you’re good at what you’re doing.”

The camaraderie among the students is still one of the most important parts of the program.

“You make a family,” Madla said. “We’ve seen each other grow and pushed each other to grow.”

— Jeffrey Day

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**Art Figures**

<table>
<thead>
<tr>
<th>200</th>
<th>studio art majors</th>
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<tr>
<td>50</td>
<td>art history majors</td>
</tr>
<tr>
<td>15</td>
<td>Master of Fine Arts students</td>
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<tr>
<td>6</td>
<td>art history graduate students</td>
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*2018-19 enrollment

**Venerable history**

<table>
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<tr>
<th>1952</th>
<th>first art faculty member hired</th>
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<tbody>
<tr>
<td>1958</td>
<td>department founded</td>
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**Groundbreaking emeriti faculty**

Robert Arneson (deceased)
Roy DeForest (deceased)
Manuel Neri
Wayne Thiebaud
William Wiley

**TB 9**
Temporary building where much of the art department’s early creative work took place. The building was added to the National Register of Historic Places in 2016.
Artist embraces the light and dark

Tavarus Blackmon (M.F.A., art, ’18) has been making art his entire life. First comics as a kid, then experimental music, tattoos, video and film, short stories, poetry, painting, and now art that brings it all together. His work gives viewers a noisy, candy-colored, loop-the-loop ride that journeys to darker places, and tackles issues of poverty, labor, and violence.

“The work has serious repercussions, but I also want it to be playful,” said Blackmon, a native of Sacramento, where he lives with his partner and their three children. “I want to have a middle ground where I’m not telling people what to think, but providing them an opportunity to reflect.”

At UC Davis, Blackmon found fellow students and faculty artists with similar aims and concerns. “The M.F.A. program is very much attuned to the world, with attention to a critical discourse about society and culture,” he said.

Blackmon has had several recent exhibitions and honors, including a solo exhibition at Verge Center for the Arts in Sacramento, a nine-month residency at Headlands Center for the Arts in Marin County, and a Sustainable Arts Foundation Parent Artist Residency through the Kala Arts Institute in Berkeley.

— Jeffrey Day
Potent BLACKMON
GLOBAL POVERTY FIGHTERS
Economics alumni help chart the course of the World Bank

Improving health, education, and social protections in Africa, studying chronic poverty in Latin America, and developing climate-smart cities and increasing food production around the world sound like far-flung goals. But these World Bank initiatives all have one thing in common: they are led by UC Davis economics graduates.

Their prominence at the World Bank reflects a long tradition in the Department of Economics of producing policy-oriented experts in global trade, capital flows, and development. “UC Davis alumni from the economics department are particularly well-prepared to tackle the challenges of contributing to the World Bank’s mission,” said Deborah Swenson, professor and chair of economics. “They leave the program with a rigorous economics training, and guidance in the application of data analysis tools that are relevant to important policy questions of global concern.”

Established in 1944 to rebuild nations devastated by World War II, the World Bank now works with more than 170 countries, with the aim of ending extreme poverty by 2030. Here are career highlights of Aggie alumni helping the World Bank achieve that goal.

— Kathleen Holder

Hafez Ghanem
Ph.D. ’87
World Bank vice president for Africa
Ghanem leads an active portfolio of over 600 projects totaling more than $71 billion to reduce poverty and support inclusive growth across Africa. An Egyptian and French national, he joined the World Bank in 1983. Over the next 24 years, he worked on bank operations and initiatives in more than 20 countries in Africa, Europe and Central Asia, Middle East and North Africa, and Southeast Asia. He served as an assistant director-general at the Food and Agriculture Organization of the United Nations; led the Arab economies project as a senior fellow in the Brookings Institution’s global economy and development program; and was World Bank vice president for the Middle East and North Africa before assuming his current role in July 2018.

Hiaw-Looi Kee
M.A. ’97, Ph.D. ’00
Senior economist with the World Bank Research Department’s trade team
Kee’s research focuses on international trade and development, and productivity and growth. She joined the World Bank in 2000. Her work has been published in top economics journals.

Renos Vakis
B.A. ’94
Lead economist with the World Bank’s Poverty and Equity Global Practice
Vakis co-leads a unit that incorporates behavioral science in the design of anti-poverty policies. He also conducts experiments to improve household survey measures of well-being. Among other writings, he co-authored a book, Left Behind: Chronic Poverty in Latin America and the Caribbean. After graduating from UC Davis, he earned a Ph.D. in economics at UC Berkeley.

Katharine “Kathy” Lindert
M.A. ’92, Ph.D. ’95
Former global lead for Delivery Systems group, Social Protection and Jobs Global Practice
Lindert retired last spring as global lead for the World Bank’s social protection and jobs delivery systems, capping a 27-year career with the bank in Latin America, Europe and Central Asia, North Africa, and globally. She managed a partnership with the Bolsa Familia Program at the World Bank’s office in Brazil and served as sector manager for social protection for the Europe and Central Asia Region.

Derek H. C. Chen
M.A. ’97, Ph.D. ’01
Macroeconomist with the World Bank’s Development Economics Prospects Group
Since joining the World Bank in 2000, Chen has worked in economic growth, poverty analysis, demographic economics, the knowledge economy, and employment creation. He is a contributing author to the World Bank’s semi-annual flagship report, “Global Economic Prospects,” focusing on the Latin American and Caribbean region. He has written widely on the growth effects of innovation and knowledge.

Dorsati “Sati” Madani
M.A. ’93, Ph.D. ’97
Senior economist at the World Bank in Bethesda, Maryland
As a senior economist, Madani has advised countries in Africa, Europe and Central Asia. Previously, she was an economist in the World Bank’s Trade Research and Policy, Poverty Reduction and Economic Management Network, and a research economist in the International Trade Research Group.

Imroving health, education, and social protections in Africa, studying chronic poverty in Latin America, and developing climate-smart cities and increasing food production around the world sound like far-flung goals. But these World Bank initiatives all have one thing in common: they are led by UC Davis economics graduates.

Their prominence at the World Bank reflects a long tradition in the Department of Economics of producing policy-oriented experts in global trade, capital flows, and development.

UC Davis alumni from the economics department are particularly well-prepared to tackle the challenges of contributing to the World Bank’s mission,” said Deborah Swenson, professor and chair of economics. “They leave the program with a rigorous economics training, and guidance in the application of data analysis tools that are relevant to important policy questions of global concern.”

Established in 1944 to rebuild nations devastated by World War II, the World Bank now works with more than 170 countries, with the aim of ending extreme poverty by 2030. Here are career highlights of Aggie alumni helping the World Bank achieve that goal.

— Kathleen Holder

Hafez Ghanem
Ph.D. ’87
World Bank vice president for Africa
Ghanem leads an active portfolio of over 600 projects totaling more than $71 billion to reduce poverty and support inclusive growth across Africa. An Egyptian and French national, he joined the World Bank in 1983. Over the next 24 years, he worked on bank operations and initiatives in more than 20 countries in Africa, Europe and Central Asia, Middle East and North Africa, and Southeast Asia. He served as an assistant director-general at the Food and Agriculture Organization of the United Nations; led the Arab economies project as a senior fellow in the Brookings Institution’s global economy and development program; and was World Bank vice president for the Middle East and North Africa before assuming his current role in July 2018.

Hiaw-Looi Kee
M.A. ’97, Ph.D. ’00
Senior economist with the World Bank Research Department’s trade team
Kee’s research focuses on international trade and development, and productivity and growth. She joined the World Bank in 2000. Her work has been published in top economics journals.

Renos Vakis
B.A. ’94
Lead economist with the World Bank’s Poverty and Equity Global Practice
Vakis co-leads a unit that incorporates behavioral science in the design of anti-poverty policies. He also conducts experiments to improve household survey measures of well-being. Among other writings, he co-authored a book, Left Behind: Chronic Poverty in Latin America and the Caribbean. After graduating from UC Davis, he earned a Ph.D. in economics at UC Berkeley.

Katharine “Kathy” Lindert
M.A. ’92, Ph.D. ’95
Former global lead for Delivery Systems group, Social Protection and Jobs Global Practice
Lindert retired last spring as global lead for the World Bank’s social protection and jobs delivery systems, capping a 27-year career with the bank in Latin America, Europe and Central Asia, North Africa, and globally. She managed a partnership with the Bolsa Familia Program at the World Bank’s office in Brazil and served as sector manager for social protection for the Europe and Central Asia Region.

Derek H. C. Chen
M.A. ’97, Ph.D. ’01
Macroeconomist with the World Bank’s Development Economics Prospects Group
Since joining the World Bank in 2000, Chen has worked in economic growth, poverty analysis, demographic economics, the knowledge economy, and employment creation. He is a contributing author to the World Bank’s semi-annual flagship report, “Global Economic Prospects,” focusing on the Latin American and Caribbean region. He has written widely on the growth effects of innovation and knowledge.

Dorsati “Sati” Madani
M.A. ’93, Ph.D. ’97
Senior economist at the World Bank in Bethesda, Maryland
As a senior economist, Madani has advised countries in Africa, Europe and Central Asia. Previously, she was an economist in the World Bank’s Trade Research and Policy, Poverty Reduction and Economic Management Network, and a research economist in the International Trade Research Group.
Laura Tuck
World Bank’s vice president for sustainable development sets her sights on a green future

GLOBAL BEGINNINGS
I grew up in Walnut Creek. I had a fantastic Spanish teacher in eighth grade, and went on in high school to study French and German in addition to Spanish. The summer after my junior year, I went as an exchange student to Switzerland and fell in love with Europe.

INSPIRED BY A PROFESSOR
I chose to go to UC Davis because it offered an undergraduate major in international relations. The first year, I took some economics courses because they were required, but I didn’t love them. The next year, I took “International Economics” with Professor Peter Lindert, got really excited about economics, and added it as a major. He was one of the best professors I ever had, and I spent many hours in his office discussing issues of international trade and finance.

ECONOMICS ABROAD
The summer between my sophomore and junior years, I traveled around Europe with my roommate, and then we both did a study abroad program at the Institute of Economic Studies at the University of Brussels. When I got back to Davis, I started working for Dr. Lindert, grading exams and student homework. When it came time to think about graduate school, he advised that I go to the Woodrow Wilson School at Princeton University because it had a policy-oriented economics program, and that’s what really interested me.

REAL-WORLD LEARNING
After my first year at Princeton, I was selected for a paid internship with the U.S. State Department in Niger. I took fall semester off and traveled the African continent by myself. By the time I returned to school for spring semester, I knew I wanted a career in development work.

A CAREER OUT OF AFRICA
That summer, I took a job with the U.S. Agency for International Development (USAID) in the Senegal River Basin, living for six months in Mali, Mauritania, and Senegal. I returned to finish my master’s degree, then Princeton invited me to join the faculty as part of a research program on risk in agriculture in Senegal. After that assignment, I moved to Washington, D.C., and worked for two consulting firms on USAID projects related to food and agricultural policy in Africa. I spent the better part of those two years working in some of the poorest countries in Africa.

INVESTING IN GREEN GROWTH
I eventually decided that the World Bank was the place where I could have the most impact in development work. I applied and was accepted to the bank’s Young Professional program. For 15 years, I worked mostly on agriculture in the Middle East and North Africa region, then Europe and Central Asia. Beginning in 2002, served in leadership roles — sustainable development director, strategy and operations director, and vice president — in those regions and Latin America and the Caribbean.

“There is no greater priority than to ensure safe stewardship of our planet. We cannot build human capital or improve standards of living if we don’t have adequate clean air and water, healthy soil and pollinators for crop production, forests and oceans to absorb carbon and provide food, fuel, and other resources.

“We cannot build a more prosperous world if we continue to steadily increase greenhouse gas emissions. If every student graduating from UC Davis were committed to these ideals, I’m confident the world would be a better place.”

EDUCATION
B.A., international relations and economics, UC Davis, ’79
M.P.A., economics, Princeton University, ’82

EXPERIENCE
World Bank vice president for sustainable development from July 2015 to present. Joined the World Bank in 1987 as an economist focusing on agriculture in the Middle East and North Africa region, then Europe and Central Asia. Beginning in 2002, served in leadership roles — sustainable development director, strategy and operations director, and vice president — in those regions and Latin America and the Caribbean.
Behind the Bots

Researchers pull back the curtain on online conversations

BOTS (short for robots) are snippets of software designed to carry out online tasks. Sometimes they’re helpful. Sometimes they meddle.
LAST FALL, thousands of Central American migrants were moving northward through Mexico. Allegations that the group included “criminals and unknown Middle Easterners” spread quickly online. Most of the rumors about the caravan were driven by social media bots, with an estimated 60% of the Twitter chatter from bots.

In general, bots (short for robots) are snippets of software designed to carry out online tasks. Sometimes they’re helpful, speeding up routine tasks like invoice processing and finding cheap flights. Sometimes they meddle, amplifying and spreading divisive messages online.

Faculty and students in the College of Letters and Science are developing sophisticated analytical tools to study the effects of bots. Their findings are opening new avenues for combatting fake news and show how bots can be used in positive ways — from helping people adopt healthy habits to envisioning a digital democracy.

“We can’t take out bots, but we can instill a positive force into the battlefield,” said Jingwen Zhang, assistant professor in the Department of Communication.

Psychological traps

From yellow journalism in the 1890s to the Nazi propaganda machine, the spread of misinformation is nothing new in human society. But bots bring new challenges.

For example, bots can give the false impression that a photo or story is highly popular and endorsed by many, whether or not the information is real. This exploits a human bias: people judge information more favorably if their social circle supports it. “People think messages with more views or likes are more credible,” Zhang said.

Human biases can also be leveraged to help us behave in more health-conscious ways. Seeing one’s co-workers, friends, and family take an exercise class or lose weight encourages others to do the same. In research with collaborators at the University of Pennsylvania, Zhang showed peer influence also works within online social networks, spurring young adults to exercise more.

Zhang is currently looking at ways to co-opt our biases to combat anti-vaccine messages. In one recent study, she tested a two-step strategy that laid out anti-vaccine messages and then refuted them point by point. “The results were concerning but also validating,” Zhang said.

It turns out that exposure to misinformation, even when accompanied by detailed fact-checking, diminished participants’ attitudes about the benefits of vaccines. The study also revealed the culprit. The fake stories about harm from vaccines made people feel angry, rather than fearful or unsafe. The findings correspond to seminal research in communication, Zhang said: “The reason misinformation spreads so fast is it contains an emotional component.” A possible solution is providing pro-vaccine messages that evoke an emotional response, an approach Zhang plans to test.

Magnifying emotions

When bots stoke anger and fear by manipulating news and social media, it’s not just for one side. During the debate around a 2015 California bill that eliminated the personal-belief exemption to mandatory vaccination rules, bot accounts tweeted both pro- and anti-vaccine messages.

Research by Associate Professor Amber Boydstun, Department of Political Science, and Professor Alison Ledgerwood, Department of Psychology, helps
explain why antagonizing all sides is a successful strategy — people pay more attention to negative information online. “Social media is good at magnifying outrage and anger because that tends to be what we click on,” Ledgerwood said.

In collaborative research probing positive and negative messages about political candidates, Boydstun, Ledgerwood and alumna Jehan Sparks (Ph.D., psychology, '18) found people’s biases form quickly and are resistant to change. Once study participants had negative views about a candidate — even a member of their own political party — it was hard to change their minds. “It is disconcerting to realize just how easily and deeply misinformation can lodge in people’s minds, often with a partisan bias,” they concluded. [See sidebar on p. 23 for their advice on combatting this effect.]

Ledgerwood is interested in how to get positive information to stick in people’s brains. “It’s an open question,” she said. Positive political campaigning does work in some circumstances, she adds. “Obama was elected on hope and change, and that positive message was able to get people excited,” Ledgerwood said. “Enthusiasm is what drives voter turnout, so there’s a possibility of motivating political engagement through getting people excited instead of getting people angry.”

**Catching democracy up to technology**

Recognizing the malicious intent of election interference by bots, there are efforts by lawmakers to reign them in at the state and federal levels. In 2018, Sen. Dianne Feinstein (D-California) introduced the Bot Disclosure and Accountability Act, which would prohibit candidates and political parties from using bots for campaigning. It would also limit PACs, corporations, and unions from using bots for political advertising.

While the damage wrought by bots is often at the forefront of research, Professor Martin Hilbert, Department of Communication, believes bots could help build a more transparent and equitable democracy. “Democracy was created when information traveled by horse. Nowadays information transfers at the speed of light,” he said. “We could build technology that fosters democracy.”

Hilbert, a former United Nations officer, and a team of five UC Davis students (undergraduate and graduate) are developing a big data online observatory for the U.N. Secretariat in Latin America and the Caribbean. The project uses machine learning to sift through vast amounts of public online data to inform international development policies. Machine learning means having algorithms learn in a similar way to humans — observing the world through data and identifying patterns. Hilbert and his students are part of a larger trend of public agencies turning toward big data to understand the wants and needs of a population. The results can provide a broad picture, but the techniques also require careful oversight.

When bots and algorithms get unfettered access to humanity’s unfettered data, they will mimic human prejudices about gender, age, ethnicity, religion, and more. An experimental Microsoft chatbot called Tay lasted only 16 hours on Twitter before it starting spouting racist tweets.

Hilbert has some ideas for avoiding this problem. Algorithm-driven decisions should be transparent and open to challenge. “If someone disagrees with an algorithm, just like when someone disagrees with a court ruling, why not appeal?” he said. And governments should invest in programmers, rather than relying on private companies, he said. “It’s just that nobody has put the lucas [money] on the table to develop algorithms to promote democracy.”

**Watching the watchers**

No technology, even bots, is inherently good or bad. But neither is it neutral. As the use of algorithm-driven technologies grows, the potential for abuse increases as well. For instance, Facebook users know the eerie feeling of seeing hyper-targeted advertisements that seem related to their offline conversations.

The age of social media has rendered anonymity almost impossible except for the privileged, said Professor Kriss Ravetto-Biagioli, professor of cinema and digital media and science and technology studies. “The awareness of ubiquitous surveillance modifies our behavior, our speech, and possibly even our willingness to be politically active,” she said. Ravetto-Biagioli is examining the pervasive loss of personal privacy for her latest book project, *Resisting Identity*.

Both Ravetto-Biagioli and Hilbert agree that social media users should have greater control over their personal data, and that public policies are needed to regulate misinformation on social media platforms. “Technology is not something that falls from the sky,” Hilbert said. “We can create the future we want.”

— Becky Oskin
As director of artificial intelligence at LinkedIn, Tim Jurka (B.S., computer science, ’10) leads a global team of data engineers, scientists, and linguists that builds algorithms to personalize the LinkedIn news feed. His tech career began at Pulse, a news feed app acquired by LinkedIn in 2013, not long after Jurka dropped out of graduate school to join the startup.

**What kinds of AI (artificial intelligence) factor into your work?**

We use AI to look at historical data and trends and then identify relevant jobs and professional conversations to display in the feed. We work across a lot of domains, such as natural language processing, knowledge representation, and machine learning. In the machine learning space, we use algorithms like neural networks for deep learning, logistic regression, decision trees, and a variety of other techniques.

**What’s the most rewarding part of your work?**

I get to help people find jobs, help them connect to mentors, and help them discover new information. It’s incredibly rewarding when you can generate economic opportunity for someone, and do it on a massive scale.

**During your time at UC Davis, was there anything or anyone who inspired you?**

As an undergraduate, I worked with Amber Boydstun (associate professor of political science) to create software to mine data and research how the mainstream media frames issues in our political system. This was the single most impactful experience I had in terms of shaping my career. It led me to enter the political science Ph.D. program at UC Davis and study machine learning. She also helped me navigate some pretty complex issues in my personal life. I left the Ph.D. program to join a startup because my dad was diagnosed with cancer and I felt the need to be closer to him in the South Bay. Amber was incredibly supportive in guiding me through that. She’s really who I credit for where I am today.

**How did your UC Davis experience prepare you for your career?**

The biggest problems to be solved will be solved by people who understand a variety of domains, not just computer science. The fact that I could really blend together the social sciences, natural sciences, computer sciences, and find all the faculty experts that are willing to nurture that interdisciplinary curriculum, was something really unique at UC Davis.

“It’s incredibly rewarding when you can generate economic opportunity for someone, and do it on a massive scale.”
When Viral Messages Pose Health Threats

Like a disease detective, Jade (Jieyu) Ding Featherstone is on the hunt for a rising global threat to public health. But her territory is Twitter and her target is vaccine misinformation.

For her doctoral research in the Department of Communication, Featherstone is tracking anti-vaccination tweets. Among questions she is exploring: Are there central players behind them? If so, are they bots or humans? Who retweets anti-vaxx messages? What works best in countering their false claims?

In a study of some 120,000 tweets about vaccines, Featherstone found only a small fraction — less than 1% — contained false information about vaccine safety, government conspiracies, and natural alternatives.

But she said those tweets, though relatively small in number, could have an outsized impact on the anti-vaccination community, which tends to distrust government sources and turns to social media for information, as well as people who are uninformed about vaccines.

The World Health Organization has declared the anti-vaccination movement one of the top 10 global health risks of 2019.

Featherstone said she hopes that her Twitter research will pinpoint areas where groups of anti-vaxxers live, alerting public health officials to communities most at risk for measles and other deadly but preventable diseases.

– Kathleen Holder
Deploying Bots to Thwart Trafficking

If you buy a pair of shoes online, you’ll be bombarded by companies wanting to sell you shoes. What if the algorithms that target purchasing priorities could be used for a greater good?

That’s just what Raquelmarie Clark (B.A., communication, ’18) looked into for her undergraduate research project, “Algorithmic Governance: Worrisome or Wonderful?” Clark has since founded We Always Help Each Other (WAHEO), a nonprofit that supports organizations serving victims of sex trafficking, domestic violence, and sexual assault.

“We look to using this technology and user data in ways to improve efficiency and reach of local and international aid,” said Clark, who is a sexual crisis counselor for Community Violence Solutions in the San Francisco Bay Area. “The same type of data already collected [by consumer algorithms] could be used as guidance on who needs what services, in which areas, and the best medium to offer services through.” For example, she said, an organization providing services to survivors of sexual assault or sex trafficking had collected demographic information, but didn’t analyze it for patterns. When analyzed, the data shows what ages, areas, and ethnic groups are most affected, and that information can then be used in deploying resources.

“We found that 67% of clients that identified as LGBTQ, and had previously attempted to access support services, did not follow through because of how they were treated by the agency’s partners from law enforcement and medical staff where the sexual assault exam was conducted,” Clark said. “This information guided the increase in quantity, and revision of content, in the collaborative training seminars.”

– Jeffrey Day

Alumna Raquelmarie Clark founded a nonprofit that supports organizations serving victims of sex trafficking, domestic violence, and sexual assault.

### Tips for Spotting Fake News Online

Learn how to inoculate yourself against rumors spread on social networks. Here are some ways to fact-check stories you see online.

- **Can you find the same news from different sources?** Say a story has an outrageous quote from President Trump. As a public official, the president has almost everything he says reported by multiple news outlets. Google the quote and see if it shows up elsewhere.

- **Read beyond the headline.** If a provocative headline grabs your attention, read a little further to see if the story supports the headline’s claims before clicking the “share” button. And check the comments — misleading headlines are usually called out for being fake in Facebook’s comments section.

- **What’s the date of publication?** It’s common for an inflammatory article to make the rounds long after it first appeared. Don’t get riled up about something that happened years ago.

- **Consult the experts.** Debunking takes time. Search FactCheck.org, Snopes.com, or PolitiFact.com to see if these reliable sites have already fact-checked the latest viral claim.

- **Reverse image search.** Striking pictures on a viral news story may have nothing to do with the story itself. You can reverse search an image on Google (right-click the image to do this) and find out whether it matches the story.
Deborah Harkness brings authenticity to bestsellers about witches and vampires

Deborah Harkness is the author of the best-selling All Souls Trilogy, about scholar and reluctant witch Diana Bishop, whose discovery of an enchanted manuscript sets loose an underworld of witches, vampires, and daemons. Among them is the vampire and scientist Matthew Clairmont, who has long been searching for the same long-lost manuscript.

The books — A Discovery of Witches, Shadow of Night, and The Book of Life — have been praised for their rich and accurate historical and literary detail. That should come as no surprise: Harkness earned a doctorate in history from UC Davis in 1994 and was an assistant and then associate professor in the history department from 1997 to 2004. Now a history professor at the University of Southern California, Harkness is a widely respected historian of science and medicine from antiquity to today. She is also executive producer of a television series based on A Discovery of Witches.

We recently caught up with Harkness to talk about her time at UC Davis, teaching, research, and supernatural beings.

Did your research while at UC Davis inspire the novels?
My time as a student and faculty member certainly informed every word in the books. I’ve been researching and studying the history of science and magic since 1982, so my time at Davis was part of a much longer journey.

Where at UC Davis would the characters in your novels be found?
Diana would of course hang out at the horse barns, as I did when I was a student. I imagine the daemons would love the Quad, which is full of life and energy. As for the vampires, let’s face it: Davis is a definite haven for coffee lovers. They would either be drinking espresso or sitting in on viticulture and enology lectures hoping to taste some wine.

Do you stay in touch with your UC Davis colleagues and students?
I stay in touch with both undergraduate and doctoral students. Many of them are engaged in education in some way and I love hearing about their adventures. My colleagues Fran Dolan and Margie Ferguson in the English department are kept up to date on all my strange activities.
Fran has been particularly generous as a keen-eyed and erudite first reader for all my novels. She is perhaps the only other person on the planet who unfailingly gets all of my scholarly references, buried “Easter eggs,” and the historical arguments I’m making (albeit in a fictional work).

How do you make history classes engaging?
I believe, first and foremost, that history is a collection of stories we tell ourselves about the past. It seems unhelpful to approach history in any other way, or to presume that we have the “correct” story or the “factual” story. I believe that this approach builds empathy and understanding, two of the greatest boons of a humanistic education.

Do your students know about your books and do you ever get “student-fans” in your classes?
I’m sure some of them know, but they are very respectful of the fact we are in a scholarly environment and that we are all there to learn and collaborate. Occasionally, after grades are submitted, they return to my office hours with books to sign for their relatives. This is usually the first time we ever talk about the books.

Best witches and vampires in popular culture?
I don’t really read modern fiction or watch much television — I’m too busy writing my own stories. I liked the movie Practical Magic — but I’m dating myself when I say that. And I adore Buffy The Vampire Slayer, especially the vampire Spike.

Any magical power you’d like to have?
Flight.

What are your current academic projects?
I’m studying domestic arrangements for science in the 17th-century Atlantic World [the places and people bordering the Atlantic Ocean]. I’m also researching oracles, though I’m not sure what I hope to discover as yet. I suppose, as usual, I will know it when I find it.

Between 1560 and 1660, about 60,000 people in Europe were executed for witchcraft. About 80% were women. What caused the massive witch hunts of the 16th and 17th centuries? Why did most of the witch hunts take place in Germany and Switzerland? And why were women most often accused of witchcraft? Why did the witch hunts end?

Those are questions explored in “Murder by Magic: Witchcraft and Witch-Hunting in Early Modern Europe,” taught by history professor Kathy Stuart, and “Witches: Myth and Reality,” taught by German professor Elisabeth Krimmer. The courses attract a variety of students — history majors, science majors interested in how scientific developments challenged supernatural beliefs, and those looking for a compelling elective.

The origins of the witch hunts were many. It was a time of wars, economic instability, and disease. The Catholic Church and just-emerging Protestantism were fighting for the high moral ground, expressed by rooting out “evil.” The lack of a strong central government in the region prevented checks on the cascading accusations, leading to confessions (often gained through torture) and executions. The enmity focused on women due to longstanding religious views about women’s “sinfulness” and inferiority, animosity toward unmarried and older women, and a strengthening patriarchal system, Stuart said.

The courses also explore modern expression of witch hunts: Hillary Clinton being tied to a nonexistent satanic human trafficking ring; misogyny toward women in positions of power or running for public office; and the coerced confessions of the “Central Park Five,” a group of young men convicted of rape and later exonerated. “This hasn’t gone away,” said Stuart. “It’s not a bygone issue.”

– Jeffrey Day
UC Davis’ Big Ideas are forward-thinking, interdisciplinary programs and projects that build upon the strengths of the university to make a better world. The College of Letters and Science is lead and partner on several initiatives that will help shape the rest of this century and beyond. Here we share the visions of College faculty champions and researchers engaged in five of the Big Ideas.

**Aggie Launch**

Aggie Launch will provide UC Davis students with tangible career preparation as part of their undergraduate work. By integrating mandatory career exploration and professional development into each student’s UC Davis experience, this initiative will prepare resilient, capable, and connected graduates poised to become the leading professionals of tomorrow. The College of Letters and Science is a partner, and has established its own Beyond the Classroom fund to empower potential donors to support all students within the College through opportunities to participate in research, internships, study abroad, mentorships, and field work.

- **Faculty Champion:** Ralph Hexter, professor of classics, provost and executive vice chancellor.

**World Water Initiative**

From drought to floods, safe drinking water to wastewater, agricultural production to ecosystem restoration, UC Davis is a leader in water-related education, research, and outreach. The World Water Initiative will bring UC Davis’ interdisciplinary expertise to bear on solving local and global water challenges. Pioneering 21st-century water science, engineering, management, and policy, this initiative will expand our leadership in managing one of the world’s most precious resources.

- **Faculty Champion:** Nicholas Pinter, who holds the Roy J. Shlemon chair in Applied Geosciences and is associate director of the UC Davis Center for Watershed Sciences. Read more about Pinter’s work at climatechange.ucdavis.edu/news/small-towns-big-flood-waters.

**Healthy Brain Aging Initiative**

This initiative will advance novel approaches to optimize brain health from birth and drive new discoveries in the science of brain development and aging that translate to game-changing early interventions and treatments. With targeted education and outreach programs, UC Davis aims to be the go-to

UC Davis hosted a public symposium in October to present each of the ideas. Learn more at bigideas.ucdavis.edu.
Since 2013, an international team of university and human rights professionals, led by UC Davis Professor and Director of Human Rights Studies Keith David Watenpaugh, have been seeking ways to address the impact of the war in Syria on higher education and in particular how to help young refugees return to university. The result is the Article 26 Backpack, a new humanitarian tool that displaced people are using to securely store and share documents, such as transcripts and resumes, with universities, scholarship agencies, and employers.

The tool grew out of the efforts of Watenpaugh’s passion to address the suffering caused by attacks on students and scholars, institutions of higher learning, and academic freedom. Supported by a $500,000 grant from the Ford Foundation, it takes its name from that icon of student life plus the article in the Universal Declaration of Human Rights that established the right to education over 70 years ago. Nearly 600 people have created virtual backpacks since the project launched in Lebanon in spring 2018.

Adapted from an article by Julia Ann Easley, UC Davis Strategic Communications.

Support the Article 26 Backpack Excellence Fund: give.ucdavis.edu/UOIP/324246.

A VIRTUAL BACKPACK
Project opens the way back to university

Since 2013, an international team of university and human rights professionals, led by UC Davis Professor and Director of Human Rights Studies Keith David Watenpaugh, have been seeking ways to address the impact of the war in Syria on higher education and in particular how to help young refugees return to university. The result is the Article 26 Backpack, a new humanitarian tool that displaced people are using to securely store and share documents, such as transcripts and resumes, with universities, scholarship agencies, and employers.

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Adapted from an article by Julia Ann Easley, UC Davis Strategic Communications. Support the Article 26 Backpack Excellence Fund: give.ucdavis.edu/UOIP/324246.

Global Human Rights

UC Davis aspires to be the first in the nation to bring the full force of a leading public research university to bear on critical human rights issues — from injustices facing California’s vulnerable undocumented population to the needs of global refugees displaced by violence, natural disaster, and genocide.

Faculty Champion: Keith David Watenpaugh, director of the Article 26 Backpack and professor and founding director of undergraduate program Human Rights Studies — Human Rights and Humanitarian Action. (Read more about the Article 26 Backpack above.)

Faculty Champion: Michael Lazzara, professor of Latin American literature and cultural studies; associate vice provost of academic programs in Global Affairs; chair, doctoral Designated Emphasis in Human Rights — Mass Atrocities and Genocide Studies.
Ronald Whitney-Whyte (B.S., design, ’75) has made a planned gift of $1 million to the College to support undergraduates majoring in design.

“I would like to increase the possibility of attaining the highest potential outcome when a student is working toward accomplishing a design project and education,” said Whitney-Whyte. “The cost of materials can at times limit the outcome. Students ought to be able to focus on the task at hand and not be distracted by undue financial constraints.”

Whitney-Whyte’s gift will establish two endowed funds, one to provide students with supplies and the other to support scholarships for junior and senior design majors.

Citing his time at UC Davis as pivotal for his success as an interior designer, Whitney-Whyte said, “There were some incredible professors during my time at UC Davis. [Professor Emeritus] Dolph Gotelli influenced how I look at the world: beauty is everywhere. Within a matter of a few years [after graduating], I had clientele that included some of the most famous people in the world.”

– Donna Justice

Design major Scott Sanchez presents his inspiration map during the Wayfinding Design class. A planned gift from alumnus Ronald Whitney-White will help support design majors.

MAKE YOUR IMPACT ON THE FUTURE

Our alumni and friends have the opportunity to ensure today’s students become tomorrow’s leaders by giving back. One of the most powerful and lasting gifts may be the easiest to make: putting a provision in your estate plans for the College of Letters and Science.

For more information on making a bequest to the UC Davis College of Letters and Science, contact Charlene Mattison, assistant dean, college relations and development, at cmattison@ucdavis.edu or 530-754-2225.

RONALD WHITNEY-WHYTE
What UC Davis Taught Me: Life Lessons

- Items can be used for something other than their purpose.
- Don’t be afraid of color and pattern.
- Discover the best way to accomplish your goal.
- Study the leaders in your particular field of interest.
- Continue to invent.
- Learning is forever.
- Always give back — in time, experience, empathy — the balance of life occurs.
- Stay involved.
- Most of all, enjoy and love what you do.
Meet Brian Burwell
New chair brings strategic expertise to Dean’s Advisory Council

Brian Burwell (B.A., economics, ’72) has worked with some of the world’s leading corporations and nonprofit organizations. He brings his expertise in strategy, execution, and organization to his leadership of the College Dean’s Advisory Council (DAC), whose mission is to offer advice and counsel to the dean.

As the campus and College move forward to advance the Aggie tradition of impact on the world, Burwell and his colleagues on the DAC have a laser focus on strengthening the College’s ability to attract and serve the most promising student and future leaders.

“As one of the exceptional educational and research institutions in the U.S. and worldwide, UC Davis and the College of Letters and Science are outstanding at educating our students and opening new opportunities for them to be leaders in society and to excel as individuals,” Burwell said. “The DAC is committed to working with the College and our students to enhance their prospects as they transition from school to successful, meaningful, and exciting careers.”

Burwell, who played intramural sports and served on the city’s fair housing committee as an undergraduate at UC Davis, has followed his passion and commitment to make a difference on social issues by joining The Bridgespan Group as a partner, working with leading nonprofit organizations, foundations, and philanthropists. He received his Master of Business Administration from Stanford University’s Graduate School of Business, and joined the DAC in 2015. He became its chair in 2018.

Gorman Museum Move
Gift pledge energizes museum expansion

Volunteer leadership is helping to ensure the longevity of the venerable C.N. Gorman Museum and its smooth transition to a new home on campus.

The C.N. Gorman Museum was founded in 1973 by the Department of Native American Studies in honor of retired faculty member Carl Nelson Gorman, a Navajo artist, World War II Code Talker, cultural historian, and advocate for Native peoples. A founding member of Native American Studies in 1969, Gorman was the first faculty member to teach Native American art at UC Davis.

Next year, the College of Letters and Science plans to move the museum to the former Nelson Gallery in the Arboretum — creating a nearly 200-fold increase in exhibition space, from 1,200 to 3,000 square feet. The museum has been located in a one-room gallery in Hart Hall since 1992.

Longtime arts champions Bill and Nancy Roe recently pledged $250,000 toward its expansion.

“The new space will further elevate our teaching and research mission, amplify our impact, and create a showcase for contemporary Native American and indigenous fine art,” said Elizabeth Spiller, dean of the College. “We are so grateful to Nancy and Bill for this critical foundational support of the museum.”

The expansion will include additional display cases and laboratory space — making more of the collections accessible to visitors and fulfilling the larger campus mandate for teaching and research. The lab will grant a behind-the-scenes look at working areas for the collections’ care and storage.

The Roes have been leaders for years in support of the arts in Davis and on campus, volunteering and making previous gifts to both the Gorman and the Jan Shrem and Maria Manetti Shrem Museum of Art.

“The Roes are a treasure in the Davis community. We are particularly grateful to Nancy for serving as a member of our Dean’s Advisory Council for nearly a decade,” said Spiller.

Nancy graduated from Davis High School and enjoyed a long career as an elementary school teacher. Bill is a founding partner and co-owner of Davis-based real estate management company Tandem Properties.

For more information on how you might support the Gorman Museum’s expansion, contact Charlene Mattison, assistant dean of college relations and development, at cmattison@ucdavis.edu.

– Donna Justice
Psychedelic Science

As more states move to legalize psychoactive drugs, there’s growing interest from consumers and drug makers seeking to treat mental and physical aches and pains. But the popularity is moving ahead of the science — a problem researchers in the Department of Chemistry plan to fix.

“There’s that saying, that the difference between a medicine and a poison is the dose,” said Assistant Professor David Olson.

Olson investigates microdosing — taking tiny amounts of psychedelic drugs to boost mood and battle mental disorders. Some people self-treat by microdosing, ingesting small amounts of LSD, mushrooms, or other hallucinogenic drugs every three or four days without inducing a trip. Olson’s group provided the first evidence in rodents that psychedelic microdosing could have therapeutic effects. Microdosing helped rats overcome a “fear response” in a test relevant to post-traumatic stress disorder (PTSD). However, the researchers also documented potential risks: the dosing regimen significantly increased body weight in male rats, for example.

Another chemist, Professor Mark Mascal, has created a synthetic, nonintoxicating version of cannabidiol (CBD) and showed that it is as effective as CBD from marijuana in treating seizures in rats. “It’s a much safer drug than CBD, with no abuse potential,” he said.

The synthetic molecule, 8,9-dihydrocannabidiol (H2CBD), has a similar structure to CBD. Mascal’s laboratory devised a simple, inexpensive method to make H2CBD from commercially available chemicals. The synthetic CBD alternative is easier to purify than a plant extract and could avoid legal complications with cannabis-related products, he said. Mascal is working with colleagues at the UC Davis School of Medicine to carry out more studies in animals with a goal of moving into clinical trials soon.

— Becky Oskin

Innovation

Faculty members David Olson (shown far left) and Mark Mascal (right) both launched new startups in 2019.

Delix Therapeutics, founded by Olson, is investigating compounds that could lead to new treatments for depression, anxiety, and related disorders.

Syncanica Bio, founded by Mascal, is developing a synthetic cannabinoid (CBD) for reducing the frequency and severity of seizures.
Winston Ko’s ENDURING IMPACT
Former dean remembered for science leadership

Winston Ko, dean emeritus of mathematical and physical sciences and an energetic and passionate advocate for UC Davis, died July 26. Through his research, leadership, and philanthropy, Ko left a lasting imprint on the campus.

“Winston was an outstanding leader, a respected colleague, and a beloved friend to the university, and his legacy will live on to improve and inspire everyone in our campus community,” Chancellor Gary S. May said.

Ko arrived at UC Davis as a postdoctoral scholar in 1970 and became a member of the faculty of the Department of Physics in 1972. He served as department chair from 1998 to 2003 when he was appointed dean of the Division of Mathematical and Physical Sciences, one of three divisions that comprised the College of Letters and Science at the time.

Under his leadership, Mathematics and Physical Sciences (MPS) expanded graduate enrollment, doubled its extramural research funding, and opened two new buildings: Mathematical Sciences, housing the departments of Mathematics and Statistics; and Earth and Physical Sciences, housing the Department of Earth and Planetary Sciences.

From the heavens to deep Earth

The MPS departments, Ko liked to say, encompassed research from the heavens to the deep Earth and from the largest structures of the universe to the smallest subatomic particles. Ko’s own research focused on the latter. In 1992, Ko and other UC Davis physicists were among the first U.S. researchers to join the Compact Muon Solenoid experiment, part of the Large Hadron Collider at the European Organization for Nuclear Research, or CERN, in Switzerland. In 2012 the international team working at the LHC announced the discovery of the long-sought Higgs boson particle.

On his retirement in 2013, Ko and his wife, Katy, established an endowment to fund a professorship and a public lecture series in the College of Letters and Science. R. David Britt, distinguished professor of chemistry, is the first to hold the Winston Ko Professorship in Science Leadership.

“It’s a great honor to recognize and encourage science leadership by my MPS colleagues, which both advances science and brings prominence to UC Davis and world-class education to its students,” Ko said at the time.

Adapted from an article by Andy Fell, UC Davis Strategic Communications.

Support the Winston Ko Professorship in Science Leadership: ☑️ give.ucdavis.edu/CLAS/122946.
Deep Creek: Finding Hope in the High Country (W.W. Norton), by Pam Houston (English), is a collection of essays centered around the Colorado ranch she purchased in 1993. There she learns what it means to care for the land and the creatures living on it, and discovers how the natural world has healed her after a traumatic childhood.

The Missing Pages: The Modern Life of a Medieval Manuscript from Genocide to Justice (Stanford University Press), by Heghnar Zeitlian Watenpaugh (art history), traces the path of eight illustrated pages from a 13th-century Armenian book of gospels. The pages disappeared during the Armenian genocide and were purchased by the J. Paul Getty Museum in 1995. A 2010 lawsuit by the Armenian Church seeking the pages’ return inspired the author’s search.

The Genius Checklist: Nine Paradoxical Tips on How You Can Become a Creative Genius (MIT Press), by Dean Keith Simonton (psychology), examines the key factors in creative genius and reveals their contradictions.

Author Assist
Maurice Prize encourages alumni to keep writing

Best-selling author John Lescroart says it took winning a prestigious award early in his career to “believe I could be a writer.” The Maurice Prize for Fiction at UC Davis, now in its 14th year, is Lescroart’s way of paying it forward.

A UC Berkeley graduate and resident of Davis, Lescroart established the Maurice Prize, named for his father, to encourage UC Davis alumni writers. The annual $5,000 award recognizes the best book-length prose fiction written by a graduate of UC Davis who is not yet published.

In the past, only creative writing alumni were eligible, but in 2019 the contest was opened to all. The result was a substantial increase of entries, with more than 50 submissions from Aggies with degrees in English, economics, political science, German, cell biology, dramatic arts, and many more fields of study.

Peter Shahrokh (English, M.A. ’75, Ph.D. ’83; MBA ’99) won the 2019 prize for his manuscript, A Wind Will Come. A Davis resident, Shahrokh had a long career as a project engineer for Siemens Technologies and is also a visual artist.

Several past winners have had their books published, including Naomi Williams (M.A., English, ’07), Landfalls (Farrar, Straus and Giroux); Melinda Moustakis (M.A., English, ’06), Bear Down, Bear North (University of Georgia Press); and Melanie Thorne (M.A., English, ’06), Hand Me Down (Dutton).

For more books by College of Letters and Science faculty, visit: lettersandscience.ucdavis.edu/bookshelf.
Tales of Afghanistan

Debut novel captures Afghan American coming of age story

When Jamil Jan Kochai was 12, his family traveled from their West Sacramento home to their native Afghanistan. During that 2004 trip, Kochai was attacked by the family dog, witnessed what the U.S. invasion had wrought, and soaked up stories of the distant and recent past. A decade later, he brought a short story inspired by that trip to his first graduate writing workshop at UC Davis.

“The story had nestled itself inside of me,” said Kochai (M.A., English, ’17). “Everyone in the workshop told me ‘this is more than a short story.’” That story became his debut novel, 99 Nights in Logar, published in early 2019 to glowing reviews.

In the book, 12-year-old Afghan American Marwand is visiting Afghanistan when the family dog escapes. He and his cousins set out to retrieve the dog, a task that becomes a physical and psychological journey into the history of a family, a country, and a people scattered around the globe. It is both immediate and contemporary — boys chasing a dog though an occupied country — and timeless, with ancient tales and fables alternating with stories about the Soviet and U.S. invasion spilling forth. The structure of the novel and the title were inspired by One Thousand and One Nights, a collection of Middle Eastern folk tales.

Although he has always been an avid reader, Kochai hadn’t considered writing until a teacher at River City High School in West Sacramento “basically forced me to take a creative writing class.” With encouragement from teachers and professors, he continued writing while earning an English degree at California State University, Sacramento, then came to UC Davis for his master’s degree in creative writing.

“I have a long history with Davis,” Kochai said. His aunt attended UC Davis, and he and his family often made the short trip from West Sacramento to visit her. His brother Jalil earned a master’s degree in education from UC Davis and his brother Marwand is a student now. (Kochai picked the same name for the novel’s main character because Marwand is a traditional Afghani name.)

The novel’s Marwand is much like the author. Kochai, who was born in Pakistan and brought to the U.S. as a baby, seems thoroughly American, even Californian. But he didn’t learn to speak English until he was in the second grade and after the attacks of Sept. 11, 2001, he was bullied and his family became cautious and withdrawn.

“I wasn’t sure if I belonged to this place,” he said, “and, in a more profound way, I didn’t know if I belonged to Afghanistan either. In the book, I tried to get a voice that encapsulated the way I experienced the world.”

That voice reflects his Afghan and Muslim heritage, his American upbringing, a Northern California conversational cadence, and his first language, Pashto, which has a rich history of storytelling and poetry.

After completing his studies at UC Davis, he earned a Master of Fine Arts at the University of Iowa. After two years away, Kochai returned to California early this year with a real sense of belonging.

“When I was away, I found myself feeling very proud of being from California,” he said. “I’ve become more aware of my identity as being from California and Sacramento, and it has been making its way into my writing.”

– Jeffrey Day
Walking around campus, you see sunlight unexpectedly reflect off an oak tree. A ginkgo tree appears to have a viewing port that lets you see straight through it. Your face appears in the bark of a magnolia.

Art and psychology student Maxine Aiello, “overwhelmed and scared” by climate change, created “If Trees Could Talk” for the art class “Miniature and the Gigantic,” taught by Professor Robin Hill. Consisting of flexible mirrors placed in the recesses and scars of 14 trees around campus, the project invites engagement with those trees in particular and the environment in general.

“The mirrors really catch people’s eye and make them stop and look,” said Aiello. “When they get closer, they see themselves. It blurs the line between you and nature; it puts you back in nature. Taking care of the planet is taking care of yourself.”

– Jeffrey Day