

ASU

ARIZONA STATE UNIVERSITY
VOLUME 26 NUMBER 1

Thrive[®]

2022

Year in review

Highlights from another year of innovative breakthroughs

PLUS

NATIVE KNOWLEDGE

Cliff Kaponu uses a deep connection with his homelands to protect the oceans

WATER MATTERS

Students put their engineering skills to work to build clean water systems

CHANGING LIVES

Arizona values

How Provost Gonzales draws on her community and family-centered values to improve lives and expand education opportunities

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Arizona State University

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In the shadow of uncertainty,

an answer

can light the way.

MAYO
CLINIC



You know where to go.

Contributors

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A student photographer from Oman, he is studying business and film and media production.

Marilyn Garateix

A journalist, she has more than three decades of experience at The Boston Globe, the Miami Herald, the Tampa Bay Times and the South Florida Sun-Sentinel. Garateix also served on the board of the National Association of Hispanic Journalists.

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A senior technology contributor at forbes.com, she was named one of the top 100 women in technology in Europe in 2012, and shortlisted for best tech journalist by the TechCrunch Europas Awards.

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A Scholar All-Region Athlete on ASU's soccer team, she graduated in '07 with a BIS in interdisciplinary studies. As an event and brand photographer, Lively's clients include Deloitte, Google and others.

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A student photographer from Afghanistan, she is pursuing medical studies.

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Imagine where we will be 20 years from now

Effectively addressing the many prospects, challenges, needs and perspectives involved in running a university is a weighty and complex responsibility. From “day one” I have been surrounded by university and community members, colleagues, friends, mentors and ASU supporters who believed that designing a university dedicated to simultaneous academic excellence, broad access and social impact was both possible and necessary. With their support and hard work, we set out together to bring the New American University to life by prioritizing student success, reorganizing our structure and empowering faculty and staff to freely innovate and collaborate to create positive change.

The scope, scale and speed of ASU's change has been unprecedented. Every aspect of our institution – from our physical footprint to our tuition model and technology philosophy – has been reimagined. In the face of changing economic tides, losses in state funding, cynicism about the value of a college degree and the swiftly changing expectations of students, parents and employers, our idea for the New American University has been a constant “North Star.”

Building perpetually from the mindset that a university is a force for advancing real and significant outcomes, ASU now produces five times the number of graduates it did 20 years ago, and we perform nearly five times the amount of world-class research. ASU is more diverse than ever before, with a student body that reflects the communities we serve and also mirrors the socioeconomic diversity of Arizona's population. The university is now empowered to educate more high-quality engineers, teachers, health professionals and business executives than ever.

ASU has redefined what a university can be by opening our doors to learners of all ages, in all stages of life. We are leveraging all of ASU's teaching and learning assets, and ASU now serves 25 times the number of learners it did in 2003.

With gratitude for what we have achieved together and optimism for what lies ahead, I wish you a fantastic 2023!

Michael M. Crow

President, Arizona State University

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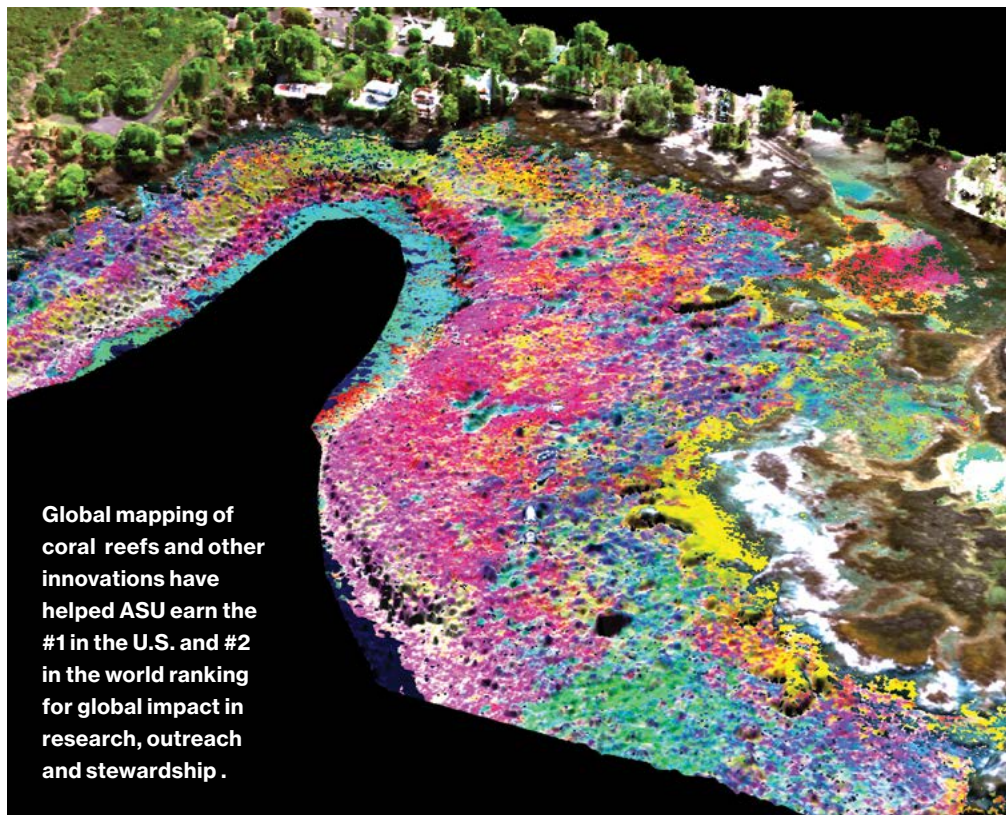


Science-based tips to see past electronics and lattes to achieve the life you want.

Advance your career

Modern tech vs. the Stone-Age brain

Doug Kenrick and David Lundberg-Kenrick reveal the dangers of using evolutionary problem-solving for modern life, and share a better way. 16



Global mapping of coral reefs and other innovations have helped ASU earn the #1 in the U.S. and #2 in the world ranking for global impact in research, outreach and stewardship.



Provost Nancy Gonzales grew up in Miami, Arizona.

JILL RICHARDS

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instagram.com/ArizonaStateUniversity
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Native knowledge

Cliff Kapono uses his ancestral gifts of surfing and a deep knowledge of his homelands to help protect the oceans and teach others. 42

Arizona Supreme Court partners with ASU West campus in new Center for Forensic Science and Psychology. 51

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From the classroom to the villages of Peru, students put their engineering skills to work to build clean water systems. 52



Chemist, pro surfer and Indigenous Hawaiian Cliff Kapono teaches in person and online.



Daniel Hoop of 33 Buckets, which provides clean water systems to communities.

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Climb


For the love of 'A' Mountain. 64



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Please visit magazine.asu.edu for the digital magazine with embedded videos and links.

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Stadium Yoga

Enjoy free one-hour yoga classes led by a rotating cast of local instructors. Classes are open to the public and all levels are invited to practice, whether you are a beginner or expert. Registration is required for each class, but nothing more is needed to participate. Recommended: Bring a yoga mat, water and a towel.

Select Tuesdays and Saturdays. Full list of dates and registration information online.

asu365communityunion.com

Free Family

Feb.

Celebrating Native culture

"Welcome to Indian Country" is an evening celebrating Native culture through music and storytelling. A world-class musical ensemble of five is joined by storyteller and Washington state Poet Laureate Rena Priest. Their individual strands of Diné (Navajo), Lhaq'temish (Lummi), Fond du Lac Band of Lake Superior, Osage and Odanak W8banaki First Nation heritage braid together to create this ensemble show.



Tuesday, Feb. 14, 7:30 p.m., ASU Kerr, 6110 N. Scottsdale Road, Scottsdale
asukerr.com

Family Ticketed +\$25

What is ASU Kerr and why is it special? Built in the late 1940s and 1950s, it is the adobe house of Louise Lincoln Kerr – a funky, unexpected space to hear live music in the heart of Scottsdale. Rooted in her tradition of inviting musicians and guests to relax and enjoy her picturesque Southwestern home, we invite you to hang out, discover something new and embrace the unexpected.

Spotlight on Japanese ceramics and prints



Tsukioka Yoshitoshi, "The Greedy Old Woman (Don'yoku no baba)," 1865, woodblock print.

Learn about Japanese ceramics and prints, with a focus on ghost stories and tea ceremonies. Woodblock prints by Tsukioka Yoshitoshi are accompanied by ceramic tea bowls and cups from Living National Treasures artists, offering audiences an opportunity to explore and appreciate Japan's contributions to printmaking and craft.

Wednesday–Sunday through Feb. 26, 11 a.m.–5 p.m., ASU Art Museum, 51 E. 10th St., Tempe asuartmuseum.asu.edu

Free Family

Ladama's Latin alternative music flow

From electric to acoustic and through Spanish, English and Portuguese lyrics, Ladama is a group of four women – virtuosic musicians and educators – who are sisters in song, rhythm and spirit. Lara Klaus, Daniela Serna, Mafer Bandola and Sara Lucas harness music from their respective countries of origin: Brazil, Colombia, Venezuela and the U.S.

Thursday, Feb. 16, 7:30 p.m., ASU Kerr, 6110 N. Scottsdale Road, Scottsdale asukerr.com

Family Ticketed





Open Door

Embark on a learning adventure

Whether you're an adventure seeker, lifelong learner, science guru or art enthusiast, Open Door 2023 has hundreds of interactive, hands-on activities created for the local community, adults and children of all ages. Explore ASU's laboratories, living collections, museums and classrooms on ASU's four campus locations – in person or from the comfort of your couch. As a signature event of the Arizona SciTech Festival, ASU invites you and your family to discover all things science, technology, engineering, arts and math.

Downtown Phoenix campus: Saturday, Jan. 28, 1–5 p.m.

West campus: Saturday, Feb. 4, 1–5 p.m.

Polytechnic campus: Saturday, Feb. 18, 1–5 p.m.

Tempe campus: Saturday, Feb. 25, 1–5 p.m.

Learn more or participate online at opendoor.asu.edu.

Free **Family** Lifelong Learning

Mar



'Kristina Wong for Public Office'

A comedic performance that crosses the aesthetics of campaign rallies, church revivals and solo theater shows, "Kristina Wong for Public Office" illustrates the enormous impact artists can have on democracy.

Saturday, March 18, 7 p.m., ASU Gammage

asugammage.com

Ticketed



At the forefront of space exploration

ASU is home to one of the world's greatest university meteorite collections, managed by the Buseck Center for Meteorite Studies. The collection enables faculty and students to conduct leading-edge research through laboratory analysis of planetary materials. Join an upcoming symposium celebrating planetary science missions catalyzed by the meteorite studies. Speakers include NASA Jet Propulsion Laboratory director and former center director Laurie Leshin.

Thursday, March 9, Buseck Center for Meteorite Studies, Tempe campus
meteorites.asu.edu

Free **Family**



Check in to events to earn Pitchforks and rewards!

Sign in to the Sun Devil Rewards app for ASU event listings, news, games and more. Earn and be rewarded!
sundeilrewards.asu.edu

Visit asuevents.asu.edu for events.
Visit thesundeils.com for athletics.

'Annie' onstage

Little Orphan Annie has reminded generations of theatergoers that sunshine is always right around the corner. This celebration of family, optimism and the American spirit remains the ultimate cure for all the hard knocks life throws your way.

Friday, March 24–Sunday, March 26, ASU Gammage
asugammage.com

Family Ticketed



Career



Recruit a Devil for your team

Highly qualified ASU students and alumni are prepared to grow your business and build your workforce as team members. Through ASU Career and Professional Development Services, you can post jobs and internships, attend career fairs, connect with prospects and more.

career.asu.edu/employers

Free Online

Job search Employers

Lifelong Learning

Free Online

Search, prep and land that job

Regardless of where you are in your journey, you can grow to achieve your professional goals using these curated resources. Polish your resume, perfect your next interview, boost career confidence, network, learn about various industries, and learn to promote your skills, experience and competencies to potential employers.

Self-paced

asuforyou.asu.edu/jobtransitions

Free Online

Inclusive Mindset for Building Positive Team Culture

Learn about team culture, strategies for working as part of a diverse team, and techniques for developing a positive, collaborative and inclusive mindset.

Self-paced

careercatalyst.asu.edu/programs/psyche-102

Catalyze your career at every stage of your professional journey

As part of ASU's New Economy Initiative, which aims to improve Arizona's competitiveness in emerging high-tech sectors, CareerCatalyst leverages the expertise of ASU's world-renowned faculty and industry experts to develop career education programs for working learners. Using the latest in workforce education technology, CareerCatalyst equips professionals with the skills they need to thrive in the new economy and ensures that businesses have access to the talent they need to prosper.

careercatalyst.asu.edu

Online Employers Lifelong Learning



Professional Skills for Everyone series

This series empowers you with practical skills such as resilience, digital intelligence and decision-making.

info.careercatalyst.asu.edu/professional-skills-for-everyone

Online

Sustainability Analyst Fundamentals Specialization

These courses introduce common sustainability roles in the workplace and equip learners with skills for addressing sustainability challenges.

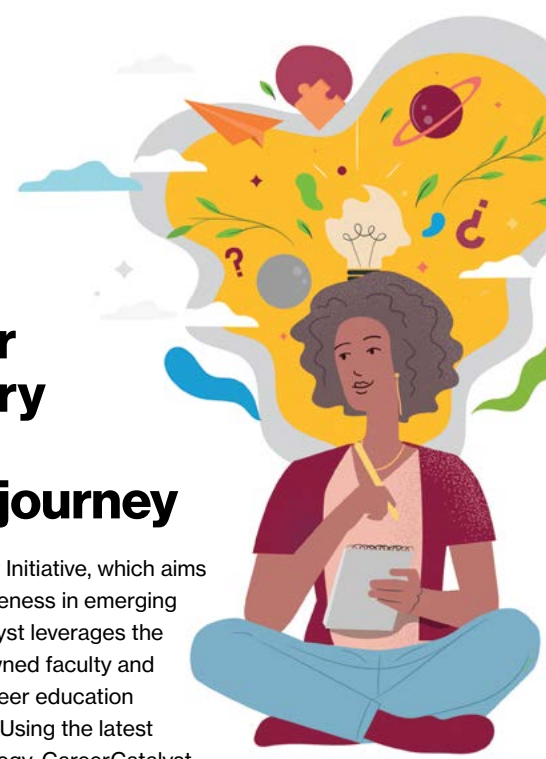
careercatalyst.asu.edu/programs/sustainability-specialization

Online



ESG and Sustainability Principles for Business

Designed by expert faculty at two leading-edge ASU schools, W. P. Carey School of Business and the School of Sustainability, these courses equip learners with the most relevant ESG knowledge sought by industry employers today. links.asu.edu/esg Online



Community



Devils donate

Sun Devil Giving Day is ASU's universitywide day of giving. When you make a tax-deductible donation, you empower students, advance research and improve lives now and for years to come.

Thursday, March 16, 12 a.m.–11:59 p.m.

asufoundation.org **Family** **Service**



Generations Family Hike

Get outside and get moving with your little Devils at one of ASU's most iconic spots – “A” Mountain. The Generations Family Hike event will start at the base of “A” Mountain with trivia and history of the “A,” the opportunity to paint your own miniature “A” to take home and photos with Sparky.

Saturday, March 18, 9 a.m., “A” Mountain

alumni.asu.edu/engage/sun-devil-generations

Free **Family**



“A” Mountain

Fun for the whole family

Sun Devil Generations is a family-friendly program designed for young Devils from birth to sixth grade. Enjoy unique and memorable experiences while also cementing a lifelong relationship between the little Sun Devils in your life and your alma mater. Sun Devil Generations events take place throughout the year and include downloadable activities if you cannot attend in person. Members receive a special welcome packet from Sparky and a year of discounted access to events.

alumni.asu.edu/engage/sun-devil-generations

Free **Family**



Chapters



Tillman Honor Runs around the U.S.

Lace up your running shoes and join your local Pat Tillman Honor Run. Each spring, the ASU Alumni Association, in partnership with the Pat Tillman Foundation, coordinates the annual Tillman Honor Runs around the U.S. to honor the legacy and impact of former Sun Devil and Army Ranger Pat Tillman. These 4.2-mile fun runs/walks are hosted by ASU Alumni chapters and clubs and are open to the community.

Mid-April, in person


alumni.asu.edu/events/tillman-honor-runs

Family **Ticketed**

Stay in touch

Update your info to stay in the know with invites to special events and more.

alumni.asu.edu/update



“On the heels of our historic legislation to secure our water future, ASU will serve as a force multiplier to enhance our water resiliency.”

— DOUG DUCEY, GOVERNOR OF ARIZONA

SOLVING ISSUES

State of Arizona taps ASU to lead water innovation initiative

In November, then-Gov. Doug Ducey announced that the university will lead a multiyear Arizona Water Innovation Initiative to provide immediate, actionable and evidence-based solutions to ensure that Arizona will continue to thrive with a secure future water supply.

The governor committed resources, including a \$40 million investment, and asked ASU to work with industrial, municipal, agricultural, tribal and international partners to rapidly accelerate and deploy new approaches and technology for water conservation, augmentation, desalination, efficiency, infrastructure and reuse.

“Since the very beginning of my administration, Arizona’s water future has been a focus, and today’s announcement will advance our efforts to use every tool possible to make sure communities across the state have access to the water they need,” Ducey said.

Ten-year-old Elias Porras fishes on the bank of the Colorado River at Gateway Park, adjacent to downtown Yuma. The Porras family is concerned about the river’s decreasing water level.



Update in the news

Studying bones for Mayo Clinic

Enabling forensic scientists to better solve crimes.

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All in for ocean health

ASU's new School of Ocean Futures.

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Now accepting patients from the community

The ASU Clinical Psychology Center has begun providing affordable mental health services to help individuals and families in metropolitan Phoenix. This expansion of the center's role was prompted by a report by the Centers for Disease Control and Prevention that found more than a third (37%) of high school students reported they experienced poor mental health. Patients from the community can receive in-person or telehealth treatment with fees based on a sliding scale. **Information at psychology.asu.edu/clinic/appointment or 480-965-7296.**



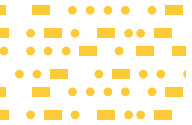
Studying bones at Mayo Clinic to help forensic scientists solve crimes

Researchers and graduate students in the Ira A. Fulton Schools of Engineering are assisting a research effort at Mayo Clinic in Arizona to improve the accuracy of forensic examinations. Subramaniam Rajan, a civil engineering professor in the Fulton Schools, assembled a team to work with researchers from the Arizona and Rochester, New York, Mayo clinics; and Arizona's Center for Regenerative Medicine.

The combined teams are seeking to help forensic researchers draw more accurate conclusions about the impact of trauma on the human body. They developed an apparatus to hold fragments of human femur bone, obtained from body donors, as an impactor drops at

a controlled and monitored rate. High-speed photography tracks the movement of the bone as it fractures, then an examination of the break patterns gives clues as to how the force is distributed – useful data for forensic analysis.

Natalie Langley, a consultant in Mayo's Department of Laboratory Medicine and Pathology who heads the research, says, "Working with Rajan and his team allowed us to think outside the box of our own work. Their knowledge in controlling the variables with forcefully creating fractures gives validity to our work, ultimately changing the process for solving crimes and giving closure to families."



\$34.6M investment for reliable internet access for Arizona

ASU Enterprise Technology, Sun Corridor Network and the Digital Equity Institute are partnering to advance broadband access throughout Maricopa County, which includes the metro Phoenix area. The Maricopa County Board of Supervisors in September voted unanimously to fund the partnership with \$34.6 million, part of the county’s allocation of funds from the U.S. government’s American Rescue Plan for mitigating economic and social impacts of the COVID-19 pandemic.



In Maricopa County, some neighborhoods report as many as 70% of residents are without adequate internet performance needed for schoolwork, work and connectivity. ASU has already begun analyzing data and preparing maps to strategize broadband installations in underserved areas. It has started to help connect community anchor institutions, such as schools, health clinics and other neighborhood assets to high-speed reliable internet.

Recent broadband installation pilots with Phoenix’s Isaac School District, led by ASU’s Watts College of Public Service and Community Solutions and Enterprise Technology, already revealed positive impacts from improving access in K-12. Now, the implications of this latest funding allocation will help Maricopa community members learn, work and thrive.

SELINE SZKUPINSKI QUIROGA



A new way to learn biology

Learning in a virtual reality environment has been predicted by science fiction for decades. In two ASU biology courses, it’s not only going on every day, it’s being validated as effective. The research shows that students who participated in the Dreamscape Learn version of the lab course had higher grades and better engagement. ASU’s Dreamscape Learn biology course, the first of its kind in the world, debuted in the spring 2022 semester. The experience was created in a collaboration with Dreamscape Immersive, a company co-founded by Walter Parkes, a writer and producer of blockbuster movies.

Keep up with the headlines at ASU by subscribing to the ASU News e-newsletter at news.asu.edu/subscribe.



Members of a CAMP family teach their grandmother how to throw the ASU pitchfork.

National recognition for improving Latino student success

The College Assistant Migrant Program, ASU’s initiative to provide academic support to students from migrant and seasonal farmworker backgrounds, received national recognition from Excelencia in Education. Excelencia is the nation’s premier authority on efforts to boost Latino student success in higher education through resources such as the Growing What Works Database. ASU’s CAMP is one of only 20 programs in the U.S. to be listed in this national database for leaders interested in identifying working strategies for Latino students.

The project identifies, recruits and enrolls students from migrant and seasonal farmworker backgrounds to attend ASU, providing them with academic, financial and social support to succeed in college.

“Recognition will only enhance our capacity to serve our students and community.”

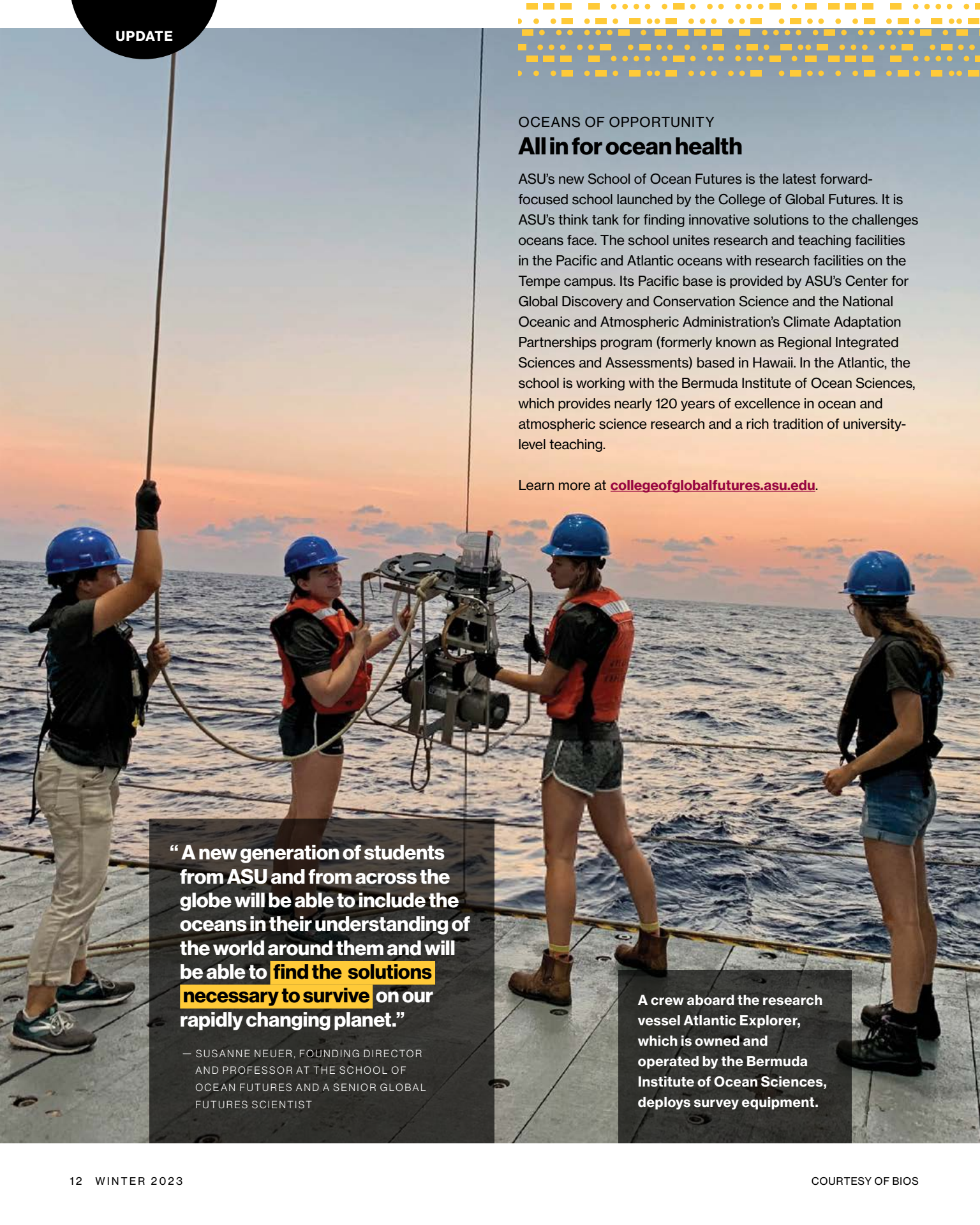
– REGENTS PROFESSOR CARLOS VÉLEZ-IBÁÑEZ, FOUNDED DIRECTOR EMERITUS OF THE SCHOOL OF TRANSBORDER STUDIES

OCEANS OF OPPORTUNITY

All in for ocean health

ASU's new School of Ocean Futures is the latest forward-focused school launched by the College of Global Futures. It is ASU's think tank for finding innovative solutions to the challenges oceans face. The school unites research and teaching facilities in the Pacific and Atlantic oceans with research facilities on the Tempe campus. Its Pacific base is provided by ASU's Center for Global Discovery and Conservation Science and the National Oceanic and Atmospheric Administration's Climate Adaptation Partnerships program (formerly known as Regional Integrated Sciences and Assessments) based in Hawaii. In the Atlantic, the school is working with the Bermuda Institute of Ocean Sciences, which provides nearly 120 years of excellence in ocean and atmospheric science research and a rich tradition of university-level teaching.

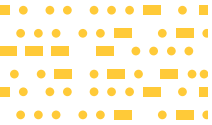
Learn more at collegeofglobalfutures.asu.edu.



“A new generation of students from ASU and from across the globe will be able to include the oceans in their understanding of the world around them and will be able to find the solutions necessary to survive on our rapidly changing planet.”

— SUSANNE NEUER, FOUNDING DIRECTOR AND PROFESSOR AT THE SCHOOL OF OCEAN FUTURES AND A SENIOR GLOBAL FUTURES SCIENTIST

A crew aboard the research vessel Atlantic Explorer, which is owned and operated by the Bermuda Institute of Ocean Sciences, deploys survey equipment.



Tech tour: Advancing semiconductors in Arizona

In the past year, ASU has hosted delegations of state and federal leaders at MacroTechnology Works in ASU's Research Park in Tempe. In August, the guests, led by U.S. Secretary of Commerce Gina Raimondo and U.S. Sen. Mark Kelly, were joined by U.S. Rep. Greg Stanton and local and state economic development professionals. In November, Heidi Shyu, under secretary of defense for research and engineering at the U.S. Department of Defense, toured the ASU site. MacroTechnology Works is accelerating research on semiconductors, advanced materials and energy devices in collaboration with U.S. tech companies in the research park. The MTW is also working to help get innovation into the hands of the U.S. military.



Peter Firth, Swift Coat co-founder, displays the nanotechnology application to U.S. Under Secretary of Defense Heidi Shyu on a tour of ASU's MacroTechnology Works.

“Enhancing America’s competitiveness in the world begins ... like this, [with] basic research and development money from the government coming together with businesses ... and academics.”

– GINA RAIMONDO, U.S. SECRETARY OF COMMERCE



ASU named National Science Foundation innovation hub leader

This year, the NSF expanded its National Innovation Network with five new Innovation Corps Hubs. ASU was selected to lead one of the five, the Desert and Pacific Region Hub.

Erwin Gianchandani, NSF assistant director for technology, innovation and partnerships, says, “Each regional I-Corps Hub provides training essential in entrepreneurship and customer discovery, leading to new products, startups and jobs.”

In the past, ASU was an NSF I-Corps Site. Being named the lead of the hub recognizes ASU’s innovation and brings more opportunities to Arizona and beyond. Ji Mi Choi, founding executive director of the J. Orin Edson Entrepreneurship + Innovation Institute, will serve as its director.



Milestone of crediting 1 million transfer courses

When a student enrolls at ASU as a transfer, they bring with them credit hours from their previous college experience. The more credits they can transfer, the fewer courses they need to finish their degree, so no student wants to see any of their credits not make the transition.

Neither does ASU. But ensuring that transfer students can apply as much of their existing work as possible toward their ASU degree means every course that transfer students might be able to retain credit for has to be evaluated and assigned an ASU equivalent. That’s the job of the Academic Transfer Credit Solutions unit in the provost’s office.

And with the beginning of the 2022–23 academic year, the ATCS team reached a remarkable milestone: Tanya Dempsey, director of the unit, says that over the last 10 years, “We have 1 million transfer courses from other institutions, domestic and international, that have been evaluated as receiving equivalency at ASU.”

47% of all students, both on campus and online, were new transfers in fall 2021.

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M MIRABELLA

ASU

Mirabella at ASU is a nonprofit, resident-centered community developed in partnership with Pacific Retirement Services and Arizona State University. Equal housing opportunity.

A vibrant sunset over a cityscape, likely Phoenix, Arizona. The sky is a mix of deep blue, orange, and yellow, with scattered clouds. The city lights are visible in the distance, and the silhouettes of three people are seen in the foreground, looking out over the view.

Advance your career

TAKE IT IN

The science of awe

Want to add more happiness to your life? Take some advice from Associate Professor Michelle “Lani” Shiota, who researches the science behind awe and other positive emotions and says a way to improve mental health is to cultivate the feeling of awe.

“Awe is that feeling you get when you perceive something as extraordinary – something so different from what your mind is used to that it stops whatever it was doing to pay attention. It’s great for giving our racing thoughts a break, and putting our day-to-day hassles and demands into perspective,” she says. “You don’t have to go to the Grand Canyon to experience awe. Just go new places nearby, and look at what’s around you with fresh eyes. Even stopping to take in our incredible Arizona sunsets can evoke a moment of awe.”

Modern tech vs. our Stone-Age brains

Doug Kenrick and David Lundberg-Kenrick reveal the dangers of using evolutionary problem-solving for modern life, and share a better way.
16

Modern tech

Doug Kenrick and David Lundberg-Kenrick reveal the dangers of using evolutionary problem-solving for modern life, and share a better way

Story by ROBERT EWING

If a family from a traditional hunter-gatherer society was transported into the modern urban world, they would think they'd landed in paradise.

Self-driving cars, homes with air conditioning and plush mattresses, and supermarkets stocked with fresh fruit, pre-made meals and chocolate ice cream for dessert: The hunter-gatherers would probably be shocked to learn that people living amid all of these luxuries are often miserably depressed, anxious and lonely.

President's Professor Douglas Kenrick and co-author David Lundberg-Kenrick recently published a new book through the American Psychological Association, "Solving Modern Problems with a Stone-Age Brain."

It focuses on how many of the problems we face in our daily lives stem from the fact that our brains evolved to deal with problems our ancestors faced, but that are no longer major factors in our lives.

Together, the father-son authors wanted to discover why people are so unhappy despite having amazing technological and societal advances.

"The book asks what are the problems that human beings have always had to solve? And which of those are the same problems we face now?" Kenrick explains.





“They needed to survive, as in feed themselves and keep themselves from falling out of trees. They needed to protect themselves from the bad guys. They needed to make friends – human beings don’t do very well on their own. They needed to get some respect and acquire mates. And then a special problem for human beings that other mammals don’t face is they needed to hang on to those mates and care for exceptionally helpless offspring.”

In the book, the authors tap research from modern evolutionary psychology to suggest some ways to reach fundamental human goals in more effective and fulfilling ways, and to avoid what they call “robo-parasites” – technological advancements that prey upon our previously adaptive, previously positive motivations.

The two authors approach the connection of psychology to human behavior in different ways. Lundberg-Kenrick, a creative director for the ASU psychology

vs. our Stone-Age brains



“We wondered how we could use the lens of the seven major goals of ancestral humans to help guide problem-solving in the modern world,” Lundberg-Kenrick says.

“Ironically, the same powerful, evolved motivations that helped our ancestors achieve those goals are often miscalibrated to the current world. Worse yet, those powerful motivational systems often open us up to being parasitized by modern technology.” For example, cellphones repeatedly trigger dopamine-receptive parts of the brain to create recurring but unsatisfying patterns of behavior.

The naturalistic fallacy

As evolutionary psychology has entered the mainstream dialogue, people sometimes make the mistake of thinking that everything natural is good.

“The naturalistic fallacy is the idea that what is natural equals what is good. Our ancestors did evolve to have selfish genes. But that doesn't mean that the right thing to do is just go out and do whatever we can to get as much as possible for ourselves,” Kenrick says.

Instead, research in positive psychology suggests that a more successful strategy for fulfilling life is to simply “be kind to others.”

In the book, the father-son team aims to show people how to fulfill their own needs by assisting those around them in succeeding too.

“If you think about how you can help other people fulfill those seven fundamental motives, it can help your business, it can improve your relationships and it can help you improve your own life,” Lundberg-Kenrick says. ■

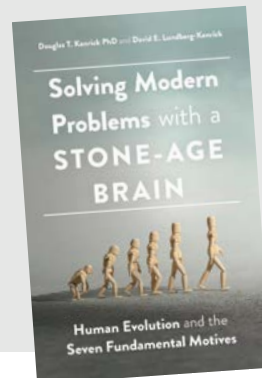
A guide to a fulfilling life

From the publisher: “Over millennia, we humans have evolved a set of motivational systems to help us solve the seven basic problems of existence. ...

“We seek the same goals in the 21st century. However, the saber-toothed tigers and rival tribes that once threatened us have been replaced by marketers peddling

sugar-laden foods, pundits fanning the culture war flames, and payday loan companies scamming those who can least afford it.

“Through a series of engaging narratives and science-based life tips, this book helps us see past our electronics and lattes and gain helpful insights into achieving the life we want.”





“While figuring out my college plans, I hoped to participate in research. But I honestly had no idea how to get involved. So I was both surprised and honored when I found out that I was selected for this award.”

—JULISSA BRUNK, WHO GRADUATED FROM GILBERT HIGH SCHOOL AND IS STUDYING BIOMEDICAL SCIENCES

The Luminosity Lab student teams apply novel perspectives to solve pressing societal issues. Teams pitch solutions in international competitions and have won the Red Bull Basement program and the XPRIZE Next-Gen Mask Challenge.

Review



August

Bigger, broader, brighter: Gift expands Luminosity Lab

Established in 2016 with just 15 students, The Luminosity Lab, a student-driven, research and development program, now in the Ira A. Fulton Schools of Engineering, has quadrupled in size and launched partner programs with other colleges and universities around the country and world. Compelling results have also inspired the creation of a new scholarship fund that enables more students from a broader range of backgrounds to bring their unique abilities to the lab. Marty Vanderploeg, chief executive officer of the software technology company Workiva, donated \$15 million to endow the Vanderploeg Luminosity Scholars Program.

Year in review

Successes and triumphs of 2022.
22

By the numbers

Research, academic and impact achievements.
26

Year in review

In the news

January

Largest cohort of Native American faculty marks major milestone

ASU's cohort of approximately 60 Indigenous scholars is the largest ever. These world-class scholars have won Pulitzers, fellowships, MacArthur "genius" and National Institutes of Health grants, and have either been inducted into major academies or earned significant awards. They teach subjects from sustainability to education, dramatic arts, science, law and health care.

—
Professor Maria Rosario Jackson, the first African American and Mexican American woman leader in its history, takes the helm of National Endowment for the Arts.



Maria Rosario Jackson

February

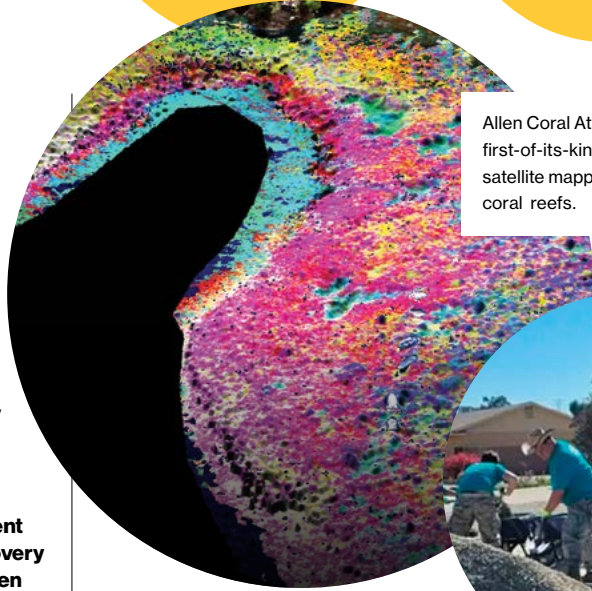
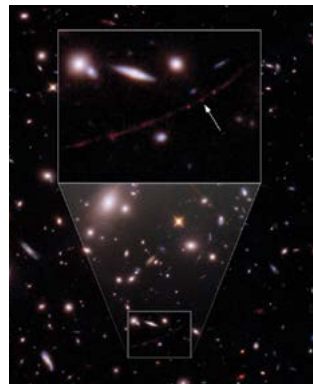
Law school forms Center for Constitutional Design

The nonpartisan center will seek to inform the public about debates over the application of the U.S. Constitution to current events and disputes, and to consider ways in which our constitutional system may be reformed or improved.

March

ASU astronomers document monumental Hubble discovery of the farthest star ever seen

NASA's Hubble Space Telescope establishes an extraordinary new benchmark: detecting the light of a star that existed within the first billion years after the universe's birth in the Big Bang — the farthest individual star ever seen to date.



Allen Coral Atlas is a first-of-its-kind global satellite mapping of coral reefs.



April

ASU named #1 in the U.S. and #2 in the world for global impact in research, outreach and stewardship

ASU is recognized as a global leader in sustainability efforts in the Times Higher Education Impact Rankings. The annual international publication of university rankings looks at impacts made addressing 17 specific goals aimed at achieving a better world by 2030, known as the United Nations Sustainable Development Goals. Adopted by all 193 United Nations member states in 2015, these goals provide a shared blueprint for peace and prosperity for people and the planet, now and into the future.

The Sustainable Cities Network aligns people and the planet by solving local sustainability issues in Peoria and other cities and towns around the state.



May

ASU alumna and former faculty member Laurie Leshin leads NASA's Jet Propulsion Laboratory

Leshin served on President George W. Bush's Commission on Implementation of United States Space Exploration Policy, as the director of Sciences and Exploration Directorate at NASA's Goddard Space Flight Center, and was the first woman president of the Worcester Polytechnic Institute.



— Frank Wilczek, a Nobel Prize-winning physicist, author and ASU professor, is honored with the Templeton Prize, joining past recipients Mother Teresa and the Dalai Lama.

June

ASU launches partnership with US Space Force

Having participated in 20+ space missions, ASU will now assemble partnerships and models to collaborate with the Space Force on research and education.



Dwayne Martin-Gomez, with family and friends, celebrated his graduation from Barrett, The Honors College. Martin-Gomez, who identifies as Hispanic, was the first in the family to go to college.

June

US Department of Education names ASU a Hispanic-Serving Institution

The designation recognizes the university's efforts to more holistically serve its community through a range of programs for current ASU students, K-12 outreach programs that strengthen the pipeline to college and resources for the broader community.

“This meaningful designation recognizes our ongoing institutional efforts to support the success of students who reflect the demographic diversity of our state.”

— MICHAEL M. CROW, ASU PRESIDENT

July

A powerful new supercomputer, “Sol,” is installed at the Iron Mountain Data Center and made available to all faculty and students to advance research and learning.





August

ASU in position to help close microchip manufacturing gap

The CHIPS and Science Act is signed into law, delivering a \$52 billion investment to help expand and accelerate U.S. semiconductor manufacturing, an important step for an industry critical to both economic competitiveness and national security. ASU, along with a host of state economic development and business leaders, is deeply engaged in this effort for the state. In November, Apple announced it will start sourcing microchips from Arizona in 2024, when a new fabrication facility comes online.

“ASU’s Knowledge Enterprise is already working to connect the laboratories where research is done to the fabrication plants where chips are manufactured — a ‘lab-to-fab connection.’”

— ASU PRESIDENT MICHAEL M. CROW

ASU is ranked in the top 10 in the U.S. for community and national service by Washington Monthly, ahead of Duke, UNC-Chapel Hill and Johns Hopkins, honoring contributions to social mobility, research and promoting public service.

September

NSF selects ASU to lead new innovation hub bringing research to the marketplace

ASU is the lead institution of a new National Science Foundation Innovation Corps Hub in the National Innovation Network.

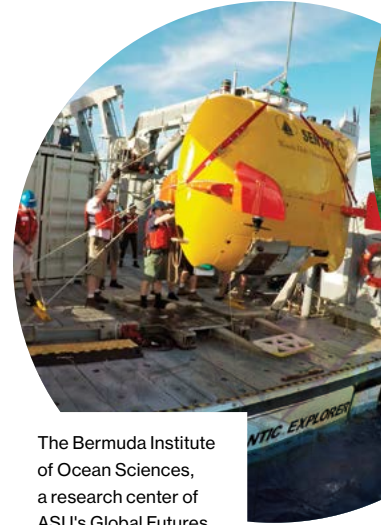
New school launches to protect the world’s oceans

The School of Ocean Futures is focused on studying, teaching and developing innovative solutions about the current and future states of the oceans.

October

ASU scientists Greg Asner and Robin Martin represent the global scientific community in film with Pope Francis on climate change

The film “The Letter” brings to life the transformative vision of Laudato Si’, Pope Francis’ encyclical letter on climate change and ecology, to inspire lasting action for our common home. It is published on YouTube and seen by millions of viewers.



The Bermuda Institute of Ocean Sciences, a research center of ASU’s Global Futures Laboratory and home to faculty of the new School of Ocean Futures, maintains the longest, most complete data set of key markers in the Atlantic Ocean.



ASU launches new science and technology centers

As part of a statewide effort to support high-tech industry, ASU launches ACT (Advanced Communications Technologies), PERFORM (Human Performance) and EXTREME (Extreme Environment) centers.



The U.S. State Department announces ASU as a Fulbright Hispanic-Serving Institutions leader.



VR biology course yields higher student success than conventional course

ASU's Dreamscape Learn biology course debuted in the spring 2022 semester for students who took Biology 181 (introduction to biology for biology majors) and Biology 100 (introduction to biology for non-science majors). Initial studies show that students who participated in the Dreamscape Learn version of Biology 181 had dramatically higher lab grades – 9% higher overall – and better engagement than their peers who took the conventional lab course.

ASU's California Center holds its grand opening in the historic Herald Examiner Building in Los Angeles, hosting public events and courses for degree programs.

ASU joins top 20 for earned doctorates

ASU ranks in the top 20 by the National Science Foundation Survey of Earned Doctorates, ahead of Yale, Johns Hopkins and Duke.

ASU, Mesa celebrate new MIX Center as highlight of downtown partnership

The new Media and Immersive eXperience Center in downtown Mesa is capable of producing blockbuster superhero movies to virtual reality video games. It is the largest part of the Mesa City Center complex, which also includes an outdoor plaza space with a 100-foot movie screen and The Studios, with entrepreneurship programs.

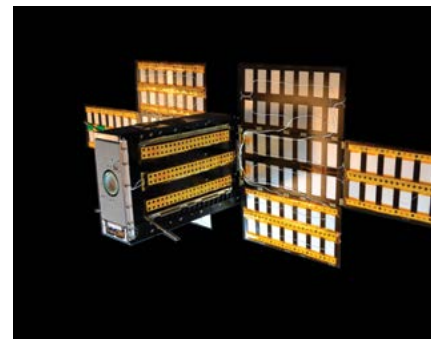


November

Ex-quarterback who went viral as balcony opera singer performs at Salute to Service

Gus Farwell was on ASU's football team with Pat Tillman and is now singing opera. He sang from his seventh-floor balcony in Barcelona, Spain, during the pandemic lockdown. He performs at a concert in Tempe for Salute to Service.

Senior Nathaniel Ross is awarded the prestigious Rhodes Scholarship to pursue postgraduate studies at the University of Oxford, one of only three students from a public university.



LunaH-Map launches

NASA's LunaH-Map mission includes a miniature spacecraft, built by an ASU team and part of the Artemis 1 mission. It is designed to orbit the moon to map water-ice in shadowed regions of the lunar south pole. This is the first NASA spacecraft to be led, designed, assembled, integrated, tested and delivered from ASU's Tempe campus.

Apple CEO Tim Cook announces the company will source chips for its devices from a plant in Arizona

ASU is working with industry and government partners to reestablish America's capacity for domestic microelectronics and semiconductor manufacturing and innovation.

December

Enhancing digital platforms for 800K learners in Ethiopia by partnering with the Ministry of Education through a Mastercard Foundation grant.

Year in review

By the numbers

Economic impact

\$2 billion+
of economic
output

has been generated within
Arizona from ASU-linked
companies to date

— SKYSONG INNOVATIONS

New Economy Initiative impact on Arizona

For years, ASU has partnered with business and civic leaders in Greater Phoenix to develop the business environment, infrastructure and human capital necessary to drive rapid expansion in semiconductor manufacturing. Learn more at neweconomy.asu.edu.

**40K new
high-wage
jobs**

by 2041

**\$6.9B in
economic
output**

by 2032

**2x return
on state
investment**
by 2032

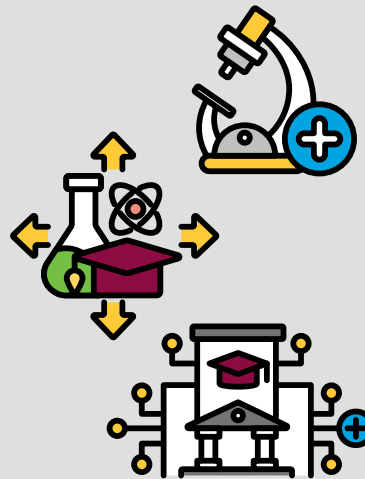
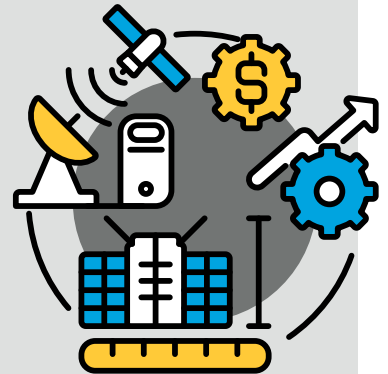
**100+
industry
partners**

Research

**ASU is one of
the fastest-
growing research
enterprises
in the U.S.**

With an estimated
\$760M total research
expenditures in FY22

— ASU KNOWLEDGE ENTERPRISE



**Top 10 in the
world among
universities
granted
U.S. patents**

ASU with MIT,
Stanford and Harvard

— U.S. NATIONAL ACADEMY
OF INVENTORS AND
THE INTELLECTUAL
PROPERTY OWNERS
ASSOCIATION

**1,340
new U.S.
patents***

with 166 new patents
in FY22

— U.S. PATENT AND
TRADEMARK OFFICE

*From July 1, 2002 to Dec. 7, 2022



Academics

37 programs in the top 10 in the U.S.

Along with 81 ASU degree programs in the top 25

— U.S. NEWS & WORLD REPORT, 2023

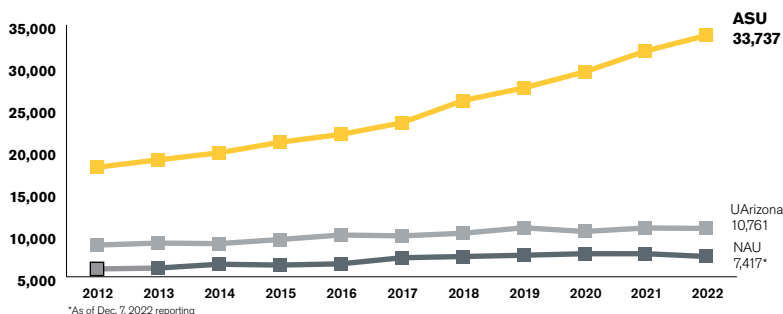
Top 10 nationally for best online bachelor's programs

— U.S. NEWS & WORLD REPORT, 2022

A top university worldwide for academic reputation

— TIMES HIGHER EDUCATION, WORLD REPUTATION RANKINGS 2022

Degrees awarded



Top producer in the state

ASU annually graduates thousands of innovators who excel in engineering, business, education, the arts and other fields. In 2021–22, ASU awarded 23,139 undergraduate degrees and 10,598 graduate degrees.

— ASU OFFICE OF INSTITUTIONAL ANALYSIS, UARIZONA UNIVERSITY ANALYTICS AND INSTITUTIONAL RESEARCH, NAU INSTITUTIONAL RESEARCH AND ANALYSIS

Global impact

ASU is repeatedly ranked #1 in areas that matter.

#1 most innovative in the U.S. for eight consecutive years, ahead of MIT and Stanford

— U.S. NEWS & WORLD REPORT, 8 YEARS, 2016–2023

#1 in the U.S. and #2 in the world for global impact in research, outreach and stewardship

— TIMES HIGHER EDUCATION, 2022



Athletics

Sun Devil Athletics ranks first in the Pac-12 with an All-Time Best Academic Progress Rate, beating Stanford.

- SDA has matched its all-time high of 92% Graduation Success Rate.
- Sun Devil Triathlon claimed sixth straight national title.
- Wrestling won its third straight Pac-12 title and finished fourth at the NCAA Championships.
- Softball won the Pac-12 Championship with ASU's most league wins in history.
- Men's golf finished second at NCAA Championships; women's golf finished ninth.
- Turner Washington won indoor shot put titles and outdoor discus and shot put victories at the NCAA Championships.
- Men's swimming had its best finish at the NCAA Championships since 1982.

Philanthropy

\$30,955,532

in scholarships disbursed in the 2021–22 academic year

\$331 million

in new gifts and commitments

for students, faculty, research and community programs

106,832

individual, corporate and foundation donors





Tempe campus
Biodesign A, 2004



Tempe
Marina Heights, 2012, now part of Novus



Tempe campus
Interdisciplinary Science and Technology IV, 2012



Tempe campus
Tooker House, 2017



Downtown Phoenix campus
Walter Cronkite School, KAET 8, 2008



Downtown Phoenix campus
Beus Center for Law and Society, 2014



Downtown Phoenix campus
Najafi Thunderbird Global Headquarters, 2021



Downtown Phoenix, Bioscience Core
850 PBC, 2021

20 years of impact

2002

Michael M. Crow becomes ASU's 16th president

He introduces the New American University model.

ASU initiates partnership with Mayo Clinic in Arizona

It will continue to grow, forming an alliance between ASU and Mayo Clinic, the recognized world leader in patient care, education and research.



Mayo Clinic and Arizona State University Alliance for Health Care

2003

ASU collaborates with the city of Phoenix to establish the Downtown Phoenix campus

which opens in 2006. As of 2022, the campus has over 11,000 students across 276 undergraduate majors, graduate programs, minors and certificates.

2006

The ASU School of Sustainability opens as the first comprehensive degree-granting program of its type in the nation.

2009

ASU Online launches broad access to higher education

with the same high-quality faculty as on campus.

ASU later launches the first electrical engineering degree, the world's first adaptive-learning biology degree and the first honors college online. Today, ASU Online offers more than 300 undergraduate and graduate degrees and certificates; 82,000 students enrolled in the 2021–22 academic year.

2011

The Pat Tillman Veterans Center is created to ensure ASU's military learners and student veterans have the support they need.

2014

Starbucks establishes a partnership to enhance access to education for its employees.

By December 2022, nearly 10,000 Starbucks "partners" have graduated.



2015

New York Times columnist calls Barrett, The Honors College 'the gold standard' among honors colleges

Named No. 1 public research institution for international students.



Shaping skylines

ASU's new buildings are embedded in communities to support collaboration, innovation, invention and learning. These strategically designed spaces prime ASU's students to become master learners capable of tackling society's most vital challenges and support the New American University in assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves. ASU has built sustainable capacity into 69 buildings, completing certified silver, gold and platinum LEED projects.

ASU is named the No. 1 'Most Innovative School' by U.S. News & World Report

the first time the honor is granted. ASU will earn the top position in every one of the following eight years, including for 2023, announced in 2022.

2016

ASU is one of the country's fastest-growing research universities among those with \$100 million+ in annual research expenditures – ahead of Harvard, Yale and Duke. ASU continues to be one of the fastest-growing today.

2019

ASU receives the inaugural "Seal of Excelencia" for commitment to Latino

student success, which is also granted a second time in 2022. ASU is named a Hispanic-Serving Institution by the U.S. Department of Education in 2022.

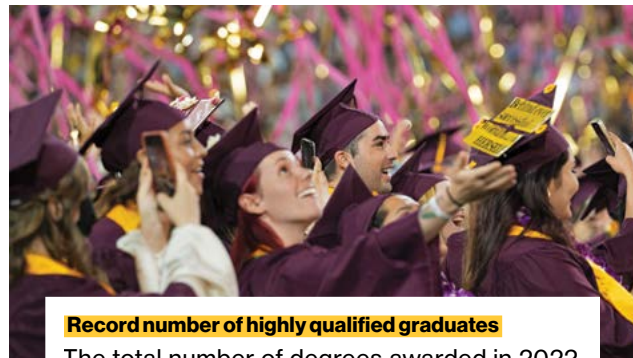
2020

Julie Ann Wrigley Global Futures Laboratory launches to study and develop solutions that help shape a thriving world for all of Earth's inhabitants.

2022

Partnering with industry to build Arizona's new economy

Five Science and Technology Centers launched or became fully operational, helping to attract new industries to the state and prepare Arizonans for future jobs. ASU has 30,000+ learners enrolled in the largest and most comprehensive engineering program in the United States.



Record number of highly qualified graduates

The total number of degrees awarded in 2022 is 33,737, **up 199% from 2002.**

Record enrollment of nearly 170,000 students during 2021–22

Student achievements include winning Rhodes, Marshall, Fulbright and other internationally competitive honors.

400+ highly prestigious faculty members

including Nobel, Templeton, Pulitzer, MacArthur "genius" and Guggenheim awardees.

86% first-year retention rate

exceeding the national average and now the highest in the state.

\$2.35 billion raised in the university's first-ever comprehensive development campaign.

Contributions are made by 359,700 donors.

\$1.2 billion+ in external funding

for ASU's Skysong Innovations spinouts.

28.6 million+ square feet of space

for learning, research, innovation, entrepreneurship and campus life at ASU locations.



A man with a beard and mustache is playing an acoustic guitar. He is wearing a black t-shirt with some text on it and blue jeans. The guitar is a dark wood acoustic guitar with a white pickguard. The headstock of the guitar has the name 'Takamine' written on it. The man is looking down at the guitar as he plays. In the background, there is a white wall and a black television set.

Nurture relationships

STRUMMING

Finding the rhythm

This past November, ASU's Guitars for Vets, part of a nonprofit organization with more than 100 chapters nationally, continued connecting with Phoenix-area veterans to support them on their healing journeys. The program provides veterans with guitars and 10 weeks of instruction. It's an evidence-based treatment that's fun. A research study of Guitars for Vets students showed a 21% improvement in PTSD symptoms and a 27% decrease in related depression symptoms because of the program.

More at military.asu.edu/guitars-vets

Arizona values

How Provost Gonzales relies on her community and family-centered values to help improve lives and expand education opportunities.

32

Partnering with 40 local preschools

Helping children learn about gardening.

38

Caption





Arizona values

How Provost Nancy Gonzales draws on her community and family-centered values to help improve lives and expand education opportunities

Story by MARILYN GARATEIX

Photos by JILL RICHARDS, SABIRA MADADY
AND GHASSAN ALBALUSHI

Ask Nancy Gonzales, executive vice president and university provost, to name a critical factor driving the pursuit of higher education for Latino students. Family support and encouragement, she'll say.

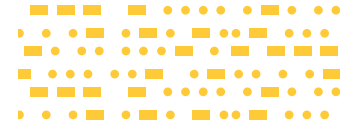
She knows; after all, much of her clinical psychology research studied this – and she lived it.

Gonzales grew up in the small copper mining town of Miami, Arizona, at a time when copper was a driving force in the state's economy. Her parents championed her curiosity and love of learning. With their support, she earned a full-ride scholarship to ASU, becoming the first in her family to graduate from college.

"Family is a source of connection, strength, pride and identity," Gonzales says.

Those family and community values instilled in her as a child still guide her today.

"Family can be broad and is not always based on kinship or biological relatedness," Gonzales adds. "We should think of ASU as one large family because it challenges us to make sure everybody feels connected."



Focused on student success

That vision of an inclusive university community, combined with Gonzales' record of administrative leadership, teaching and scholarship, is why ASU President Michael M. Crow appointed Gonzales as provost and executive vice president in 2021.

Before her current appointment, Gonzales, '84 BS in psychology and biology, followed up by a Master of Science and PhD in psychology at the University of Washington, was a well-regarded, award-winning clinical psychologist. Examples of Gonzales' many academic accomplishments include: principal investigator or co-investigator for more than 30 grant-funded studies, author or co-author of more than 160 peer-reviewed studies published in scientific journals, mentor to over 30 doctoral and postdoctoral students and hundreds of undergraduate students, appointments to numerous national organizations and boards and rising from Foundation Professor to dean of natural sciences in The College of Liberal Arts and Sciences.

"Nancy is a highly credentialed, well-respected leader among her peers who is a natural fit to be our executive vice president and university provost," says Crow. "Her background and expertise will undoubtedly help the university advance its mission to be of the greatest public service to the citizens of Arizona that we can be."

As ASU's chief academic officer, Gonzales plays a central role in teaching and learning at



“Family can be broad and is not always based on kinship or biological relatedness. We should think of ASU as one large family because it challenges us to make sure everybody feels connected.”

— NANCY GONZALES,
EXECUTIVE VICE PRESIDENT
AND UNIVERSITY PROVOST

the university. And she lives by a mantra: Student access. Student success. Academic excellence.

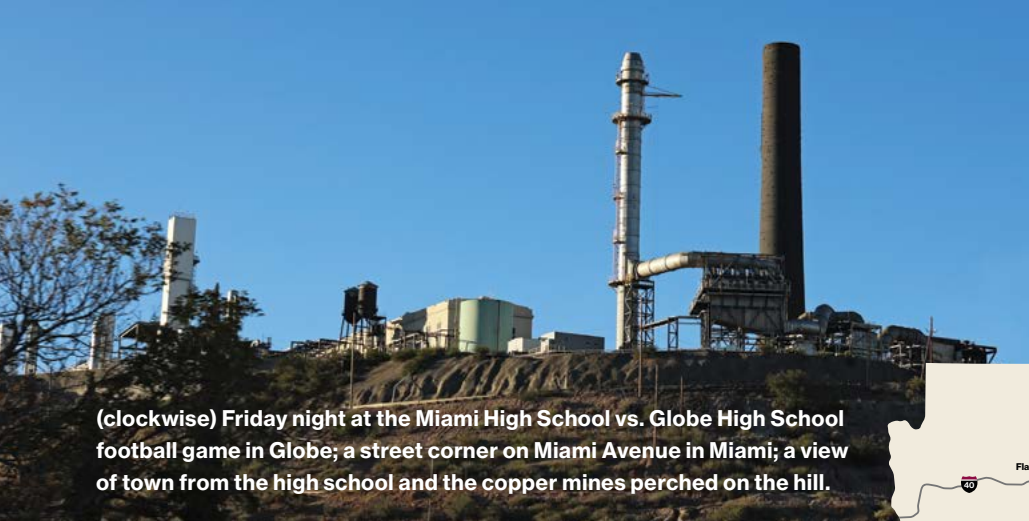
Removing barriers to success

Gonzales' role as executive vice president and university provost is twofold when it comes to student success: Drive strategies that lead to the academic success of ASU's diverse student body of nearly 170,000, including those from rural and underrepresented communities. And, break down roadblocks to higher education so that more Arizonans can access an ASU experience. Gonzales' career makes her well-prepared to take on these challenges.

In her 30 years as a clinical psychologist, she studied the link between education and mental health disparities in order to develop programs, practices and policies to promote psychological well-being and resilience in underserved communities. She saw parents who valued education in these communities but lacked the social capital needed to support their children's academics. She also found that lasting positive benefits, including better grades and longterm reductions in teen alcohol and drug problems were possible when families received simple solutions such as knowledge and resources to strengthen their connections to education.

To that end, Gonzales has conducted several interventions and longitudinal studies funded by the National Institutes of Health to chart the development of infants, children and adolescents living in diverse urban and rural communities in Arizona and California. Her research has examined development at multiple levels, from neurobiological and psychological factors to the role of community and neighborhood. Several of her studies show how traditional family and community values help youth develop a sense of purpose, self-regulatory capacities, and the habits of mind they need to thrive and overcome barriers in life.

Another part of Gonzales' wide-ranging work has been guiding the strategy that led to ASU being named a Hispanic-Serving Institution in June 2022. The HSI recognition is reserved for



(clockwise) Friday night at the Miami High School vs. Globe High School football game in Globe; a street corner on Miami Avenue in Miami; a view of town from the high school and the copper mines perched on the hill.



colleges and universities in which Hispanic enrollment is at least 25% of full-time undergraduate enrollment. This distinction will pave the way for ASU to receive federal dollars to develop or expand programs supporting Latino students and helping them transition to college.

Gonzales credits the university's HSI distinction to its mission of inclusion and the dedicated work of ASU's faculty and staff.

"We have many talented faculty, staff and leaders from diverse backgrounds all across our university. The breadth of their expertise and accomplishments speak volumes and give a glimpse of the exciting progress that is yet to come," she says. Gonzales hopes to continue to pay it forward and open the door for

more Hispanic students at ASU, one of the largest public research universities in the country.

It's important to support underrepresented populations like Latinos at ASU, she says, as the numbers seeking higher education after high school lag behind the college going rates of white and Asian high school graduates, nationwide. This is unacceptable in Arizona where over 50% of K-12 students are Hispanic and where Latinos are the second-largest racial and ethnic group at more than 32% of the population.

But it isn't just about supporting one group of underrepresented students, Gonzales says. "It is ultimately about fulfilling our charter of inclusion and achieving our dual goals of equity and excellence for everyone."

Connected to rural communities

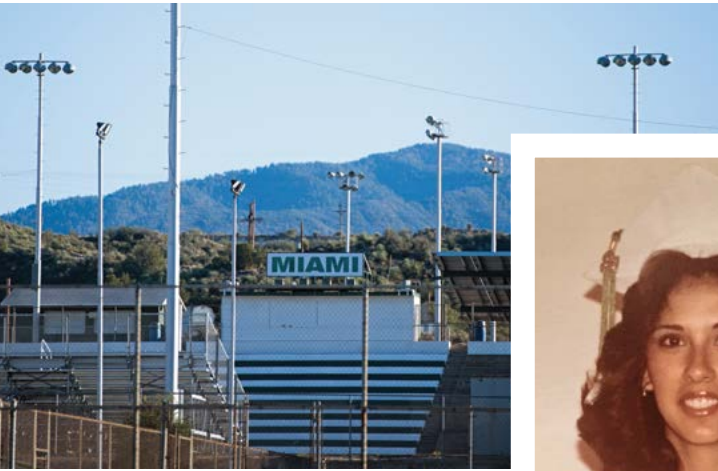
When Gonzales was growing up in Miami, mining executives and miners lived in segregated neighborhoods, but their children went to the same schools. "The mining industry used its influence to ensure we had strong schools and teachers, and that benefited all of us. This was true in many of Arizona's mining communities where there was a lot of pride in local accomplishments, whether in academics or sports," Gonzales says. "Although many people focus



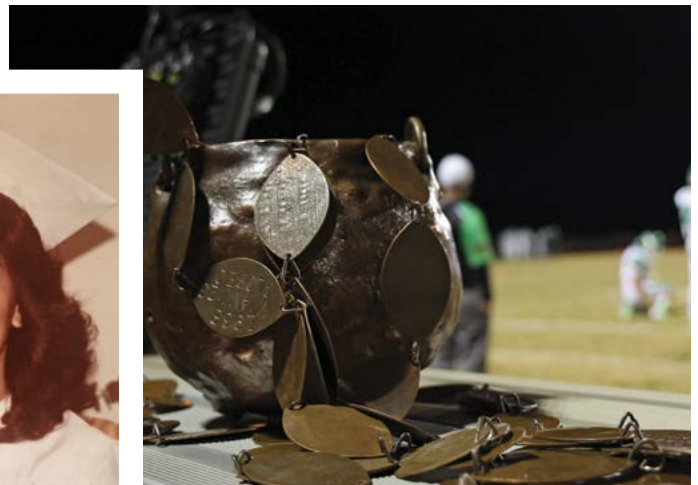
Miami, Arizona – Our Lady of the Blessed Sacrament where Nancy Gonzales was baptized.



The “M” on the front of Miami High School is made of copper, honoring the town’s role in mining.



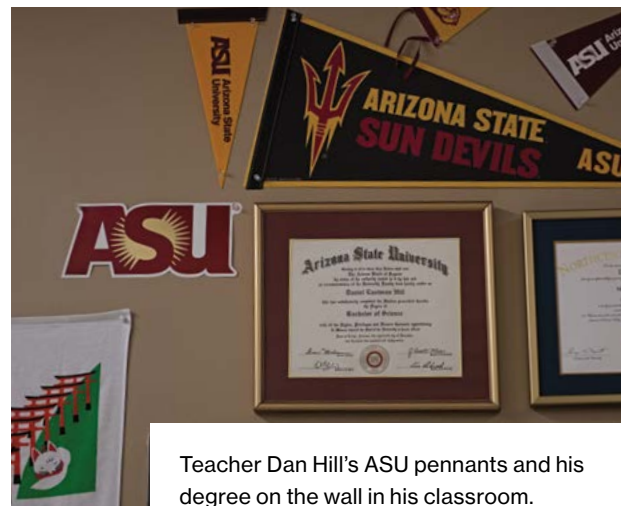
Above: The Miami High School football stadium. Right: Nancy Gonzales graduating from Miami High School.



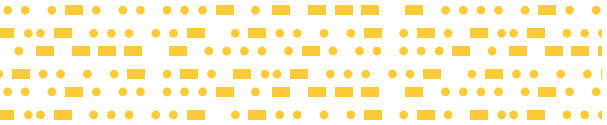
The Copper Kettle, made by parents who worked in the mine, is the coveted prize of the annual Miami-Globe football game.



Josie Klindt, a senior who leads her class and is the editor of the school newspaper, was a Barrett Summer Scholar and has applied to ASU for next year.



Teacher Dan Hill’s ASU pennants and his degree on the wall in his classroom.



on the disadvantages of a rural upbringing, we didn't see it that way," Gonzales adds. "Miami was a place where parents sacrificed and families supported one another to lift up the next generation."

A small example of this is Miami's Copper Kettle, which the miners handcrafted that became a coveted trophy between the neighboring rival football teams at Miami High School and Globe High School, only 7 miles apart; the teams just played their annual football game against each other for the 99th year in a row this past October. The 65-pound trophy still serves as a demonstration of the townspeople's pride in their community and family roots.

Currently, the university strives to help Arizona towns like Miami address modern challenges, including loss of some of the previous economic opportunities as mining and other industries changed. One solution is improving pathways to higher education through initiatives like ASU Prep Digital. It offers an a la carte approach to boost curriculum in partnerships with existing schools. Miami has 67 students currently taking classes and as many as 150 some years. It's become a vital part of the school with about 500 students participating over the years, says Glen Lineberry, Miami's principal.

"It is an extraordinary curriculum," he says. "We call it the Cadillac of online instruction."

Gonzales is one of Miami's success stories and one who shares her story in hopes of inspiring others. She spoke to

"Although many people focus on the disadvantages of a rural upbringing, we didn't see it that way.

Miami was a place where parents sacrificed and families supported one another to lift up the next generation."

— NANCY GONZALES,
EXECUTIVE VICE PRESIDENT
AND UNIVERSITY PROVOST

Miami's faculty at the start of the 2021–22 school year, and Lineberry says, "She talked about the importance of community life, how growing up in Miami prepared her for the hard work and commitment required to make it in the world, and that memories of the town gave her strength." He considers her "brilliant." "We are very proud of her here," he says.

Excited to continue the work

Every day at ASU inspires her to work with so many others who are transforming education. "The world is changing rapidly and we have an important responsibility to provide all of our students with the opportunities they need for lifelong success," Gonzales says. "We also have a responsibility as a large public service university to utilize all our assets, expertise and knowledge to solve society's grand challenges and to ensure our work ultimately benefits the communities we serve." ■



National recognition

Last September, ASU earned the Seal of Excelsencia given by Excelsencia in Education. The seal recognizes institutions for intentional efforts to ensure access and success for Hispanic students and to increase Hispanic faculty, administration and staff representation.

Some reasons for the designation, according to Provost Nancy Gonzales, include:

- **College affordability improved.** Focused scholarship opportunities include the College Attainment Grant Program and the President Barack Obama Scholars Program.
- **Representation in faculty rose.** Hispanic full-time faculty increased by 23% over the past five years.
- **Students and family outreach accelerated.** University outreach includes WeGrad, an eight-week college readiness curriculum providing families tools to support their children successfully through the U.S. education system. Sessions are facilitated in Spanish, and more than 60,000 family members and students have completed the program.
- **Programs for transfer students grew.** Over the last five years, the number of Latino transfer students entering the university for full-time and part-time students increased by 36% and 62%, respectively.
- **Programs to serve diverse subgroups of Latino students rolled out.** For example, the ASU CAMP Scholars Project developed by faculty and staff within the School of Transborder Studies provides academic support in college to students from migrant and seasonal farmworker backgrounds.

“Our hope is to have [children] explore new fruits and vegetables through the garden and also know the process of what it takes to grow something to eat.”

– ALMA CORTES, PRESCHOOL DIRECTOR
AT FAITH LUTHERAN WHERE THE
GARDEN IS LOCATED

HEALTHY GARDENS

ASU Edson College project partners with 40 local preschools

The Sustainability via Active Garden Education, an ASU project that has partnered with 40 Head Start and Child and Adult Care Food Program preschools, builds open-air gardens in local communities. Participants also provide a curriculum that includes garden materials, lessons, video instruction and technical support.

Rebecca Lee, a nursing and health innovation professor and a senior scientist in the Julie Ann Wrigley Global Futures Laboratory, said SAGE grew out of work preventing and controlling obesity. In order for that goal to be reached, she says, education has to start early in a person's life.

SAGE plants the garden bed, gives the seeds to the school principal or director and then works with students through songs, games and science experiments.



SAGE students build the walls for a raised garden for preschoolers at Faith Lutheran. SAGE is staffed by undergraduate students, who receive credit hours, and master's students who are doing field research.

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— Sierra Club, 2021

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Dive

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Mystique of the mustang

During a recent trip, pre-veterinary students studied Arizona's wild horses. Nearly 430 wild horses live in Tonto National Forest. Lecturer Julie Murphree takes students on the trip every year to give them real-world experience.

Learn more about the pre-veterinary program and other applied sciences at cisa.asu.edu/science-math-majors.

Native knowledge

Cliff Kapono is a living blend of science and his Indigenous roots, using his ancestral gifts of surfing and knowledge of his homelands to help protect the oceans and teach others.

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Water matters

From the classroom to the villages of Peru, students put their engineering skills to work to build clean water systems.

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Native

knowledge

ASU IN HAWAII

Cliff Kapono is a living blend of science and his Indigenous roots, using his ancestral gifts of surfing and deep knowledge of his homelands to help protect the oceans and teach others

Story by KRISTIN TOUSSAINT

Photos by JOSH SOSKIN AND SARAH LEE



CLIFF KAPONO is looking out onto Honoli'i Beach on the east side of Hawaii's Big Island, and the water is brown. That's not unusual – brown water has occurred on this coastline for thousands of years. But it can be a threat to coral reefs. When sediment, often due to runoff from heavy rain, gets into the water, it blocks sunlight from reaching reefs. It can even smother coral, leading to coral bleaching and potentially coral death.

Centuries of brown water, you might think, would have smothered any coral here long ago. Yet somehow, a reef exists – an anomaly Kapono noticed while surfing.

Kapono, an analytical chemist and an assistant professor in ASU's School of Social Transformation and School of Life Sciences, and a faculty member at the Center for Global Discovery and Conservation Science, isn't the kind of researcher who spends all his time in the lab. He is also a professional surfer and a Hilo native of Hawai'i, as his people spell and refer to their homeland. Those experiences, combined with

his scientific education, give him a unique perspective on the places he's trying to protect.

"What I've noticed from surfing this wave just outside of town is despite having constant brown water throughout the year, there's a brilliant reef that exists out there," he says. "Reef and coral species that are only found here in Hawai'i, Indigenous coral communities."

Other scientists who don't surf those waters may have never encountered that reef, one that the scientific literature suggests couldn't exist. But Kapono isn't like other scientists. A professional surfer, a journalist and an Indigenous Hawaiian, Kapono is not just an advocate for the melding of Western science with Indigenous knowledge or for getting into nature and using storytelling to further his scientific work. He is inherently a living blend of all those things.

Analyzing coral reefs

Through his research, Kapono is trying to figure out why that reef in those silty waters is still alive. His Honoli'i Project, recipient of a National Science Foundation grant, involves taking samples of that coral – diving down under the water while holding his breath, not with the aid of a scuba tank, like conventional scientists might do – to analyze them in a lab.

Kapono is an analytical chemist, a title that means, in his words, that he "investigates different molecules

that exist in and around us." He's trained in a technology called mass spectrometry, an instrument that can identify and characterize molecules we can't see with our eyes – think testing for pesticides in food, or drugs in urine.

"I just use these instruments to take an unbiased image of what's in, say, a glass of water, or what's on top of your chair, or what's in your mouth," Kapono says. "An analytical chemist just looks and analyzes. It's very surfer style before you catch a wave. You're just checking





“We have ancestral stories that celebrate the coral reef as our oldest grandmother, so it’s a project founded in Indigenous wisdom, supported by our athletic ability to surf on it, and the storyline is community driven.”

— CLIFF KAPONO,
ASSISTANT PROFESSOR

Pro surfer, chemist and Indigenous Hawaiian Cliff Kapono among the coral reefs near Hilo.

things out. ... And when you just sit and watch, you start to find different patterns. You start to find different trends.”

If there’s recently been a storm, or if there’s coastal development, “You start to see the change in this molecular flow, and then you can start to form correlations and ask better questions of, ‘How am I impacting the natural world?’ and ‘How’s the natural world impacting me?’” he says. By looking at the molecules found on those corals, he’ll see how they change or

respond to heavy rain and sediment, giving insight into how they survive.

“We have ancestral stories that celebrate the coral reef as our oldest grandmother,” Kapono says, “so it’s a project founded in Indigenous wisdom, supported by our athletic ability to surf on it, and the storyline is community driven.”

Telling science through stories

Stories are essential to how Kapono does his scientific work – both creating new stories to help people connect to nature and science and

ASU in Hawaii

In Hilo, Hawaii, ASU’s Center for Global Discovery and Conservation Science uses nine labs to research coastal and marine sustainability. There’s also a coastal marine grad school program and ASU Prep Digital, which partners with Kamehameha Schools to provide education tech for K-12. Other partnerships, like ASU’s support of the Polynesian Voyaging Society, amplify Indigenous peoples’ work on the islands. ASU also leads the Core Office of the National Oceanic and Atmospheric Administration’s Climate Adaptation Partnerships program for the Pacific in Honolulu.

4 ways to make a difference today

Not sure how you can help the oceans? Implement these steps from Cliff Kapono.

GET OUT INTO NATURE.

“Even if it’s five minutes a day of walking outside and listening to birds, feeling the wind and watching where the sun is, that’s super important to do.”

THINK ABOUT THE INDIGENOUS STORIES THAT EXIST ALREADY.

“There’s so much history of environmental protection through the Indigenous.”

DON’T BE TOO CRITICAL OF YOURSELF.

“It’s hard to go no plastic, have zero waste and not use a car. Come in knowing this is a marathon, not a sprint, and forgive yourself upfront.”

MAKE INCREMENTAL CHANGES, LIKE SKIPPING PLASTIC STRAWS.

“You’re starting to use this environmentally conscious muscle that’s maybe out of shape, and you can start to think about ‘How do I reduce my plastic consumption?’; ‘How do I reduce my waste?’ and ‘How do I think about alternative forms of energy consumption?’”

sharing Indigenous stories that have fostered his own connection.

“It’s weird how it’s not very critical to the science industry, and that’s why I feel there’s an opportunity to bring some of that communication in a fresh and contemporary youthful way to science,” he says.

Through his work with the MEGA Lab, a multi-institutional consortium currently made up of staff from ASU and the University of Hawaii, he’s helping foster both solutions for how to protect the ocean and also stories about that work. “More of the surface of Mars has been mapped than the bottom of the

we came into the world and then how we be in the world. So almost all of our stories have some value proponents tied into them that are life lessons and guidance for us.”

Seeing how Kapono thinks about science and stories, and how he disrupts conventional norms, Brayboy feels connected to him – and excited about how his ways of doing things will make ASU better.

“Cliff is a real chemist, there’s no doubt about that,” Brayboy says, “but he disrupts narrow viewpoints of what it means to be a chemist by infusing chemistry with particular knowledge systems, whether it’s the

“It’s not just storytelling that has persisted through those 1,600 years, but detailed knowledge of how to manage an ecosystem for its future.”

— GREG ASNER, DIRECTOR OF ASU’S CENTER FOR GLOBAL DISCOVERY AND CONSERVATION SCIENCE

sea,” Kapono explains in a MEGA Lab video about mapping the reef underneath the famous surfing wave, Nakurukurumailani, called Cloudbreak, in Fiji. “How are you supposed to take care of something when you don’t even know what it looks like?”

Storytelling is a perspective that resonates with ASU.

“Stories do lots of things for us,” says Bryan Brayboy, director of ASU’s Center for Indian Education. “They help us think about how we might view the world. They help us understand what our realities are. They help us think about what knowledges are there. We have origin stories that tell us how it is

stories he’s retelling, or whether it’s the stories he’s creating through film, or what he knows as a surfer.”

Bringing Indigenous knowledge to ASU

Western science is a toolkit for understanding the world, but it’s only a couple of hundred years old. In contrast, Indigenous people settled the Hawaiian Islands around A.D. 400.

“It’s not just storytelling that persisted through those 1,600 years, but detailed knowledge of how to manage an ecosystem for its future,” says Greg Asner, director of ASU’s Center for Global Discovery and Conservation Science.



Cliff Kapon (right)
is a faculty advisor
to geography PhD
candidate Kailey
Pascoe, who also is
part of MEGA Lab.



Western science alone will not be the answer to our planet's problems, Asner says. It's a piece of it, he says, and another piece is not only Indigenous knowledge, but also the Indigenous perspective to connect with nature and reach people. It's why he's focused on building a faculty that, he says, "does not treat Indigenous knowledge and Western science as two things that have to come together, but already blend them [as Kapono does]."

After hearing how his partner, Indigenous scientist Haunani Kane, then an assistant professor at ASU, felt about the university, Kapono decided to accept the offer to join the faculty.

In school, Kapono felt he had to separate the disparate parts of himself. He was hesitant to enter back into a formal institution, but Kane had shared with him how ASU provides an opportunity to bring the blend of science and Indigenous knowledge to the institution — and help amplify it even more to the wider world. ASU leadership, including Asner and Brayboy, among others, listened to his hesitations and were willing to take a chance on a new way of education, while still allowing him his career as a professional surfer, which made him feel comfortable joining the university.

Bringing in Indigenous knowledge systems is not exactly a new way of education, though.

"It's an old way, a way before the colonization of all these spaces," Kapono says. "Before we were told we have to stop speaking wind language and ocean language and tree language."

Kapono still has that old-way

connection to the world and the environment, like through surfing, which he says has been in his family for more than 90 generations.

"In my family, surfing was always seen as a gift; it's something that was given to me by my father, and it was given to him by his family," he says, "and surfing is very important to Hawai'ian culture and identity."

Kapono explains that Indigenous knowledge isn't just in learning how to take care of a place; it's a specific way of approaching learning.

"How do we accept knowledge? How do we give knowledge? How do we perpetuate knowledge? And what does it mean to even be a body or a being that can receive knowledge?" he says. "These are all philosophical and intrapersonal types of conversations that we can have while we're talking about sea level rise or coral bleaching."

It's a more holistic approach, he adds, that allows students to feel there's a bigger picture to their work than writing a paper or finding "the next cure."

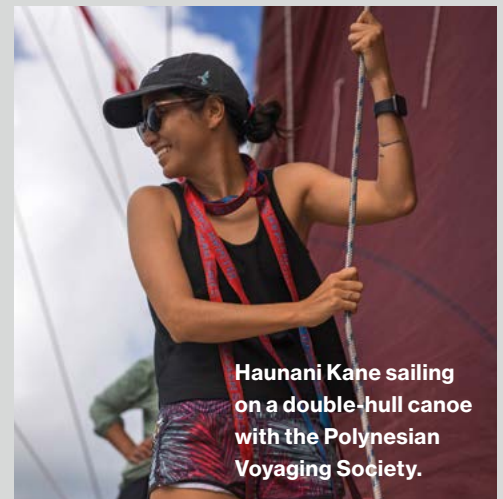
"It's this idea that a cure actually is a form of knowledge that we can provide further in time, similar to how Indigenous people think seven generations in the future for the actions of today," he says.

He hopes that way of thinking empowers people, including his ASU students both online and in person.

"It gives them some expressions of what it means to connect to other people and to the planet," Kapono says. "And if they don't speak their Indigenous language, then maybe we can speak science language. Science, I feel, is a language for all." ■

Connect with traditional wayfinders

Haunani Kane, a scientist, surfer and native Hawaiian who works as an assistant professor at the University of Hawaii, is a lead navigator for the Polynesian Voyaging Society, which ASU helps to support. Kane says that her life is "guided by the values and storied history of her kūpuna," or ancestors. She combines her experiences as a traditional wayfinder — exploring the ocean on a canoe and navigating using the sun, stars, moon and winds rather than with a GPS — with geomorphology and spatial analysis to study how climate change affects islands, reefs and island people.



Haunani Kane sailing on a double-hull canoe with the Polynesian Voyaging Society.

"When you're on a large research vessel, you spend most of your time indoors in a lab, analyzing your data. But when you're on a canoe, you're out there in the elements, and everyone — the crew, the scientists — needs to work together to get where we want to go," she told The New York Times when it profiled her in "10 Women Changing the Landscape of Leadership."

The society is preparing for the 2023 Moananuiākea Voyage. Learn more at hokulea.com/moananuiakea. Kane is also part of MEGA Lab.



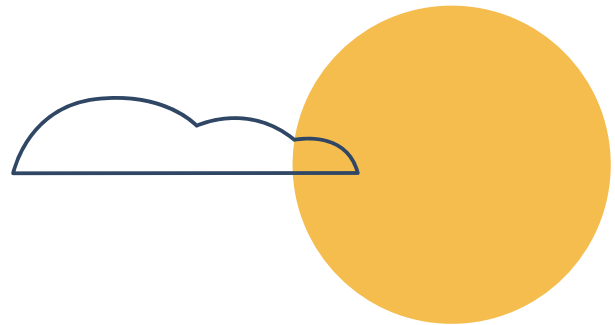
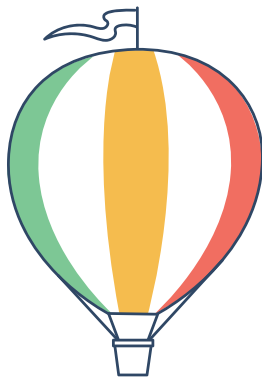
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“The Arizona courts have a record of creativity and thought leadership. This new partnership builds on our legacies of innovation through the creation of a globally distinct collaborative center.”

– TESS NEAL, AN ASSOCIATE PROFESSOR IN THE SCHOOL OF SOCIAL AND BEHAVIORAL SCIENCES AND FOUNDING DIRECTOR OF THE FUTURE OF FORENSIC SCIENCE INITIATIVE

Arizona Supreme Court partners with ASU West campus in new Center for Forensic Science and Psychology

The court and the New College of Interdisciplinary Arts and Sciences will examine and disseminate the most up-to-date understanding, training and application of forensic science and forensic psychology as applied to various case types throughout the justice system.

In recent years, New College has seen tremendous growth and interest in forensics. It is home to the Future of Forensic Science Initiative, a transdisciplinary hub of basic scientists, applied scientists and practitioners pioneering a world-class intellectual space for forensic science.

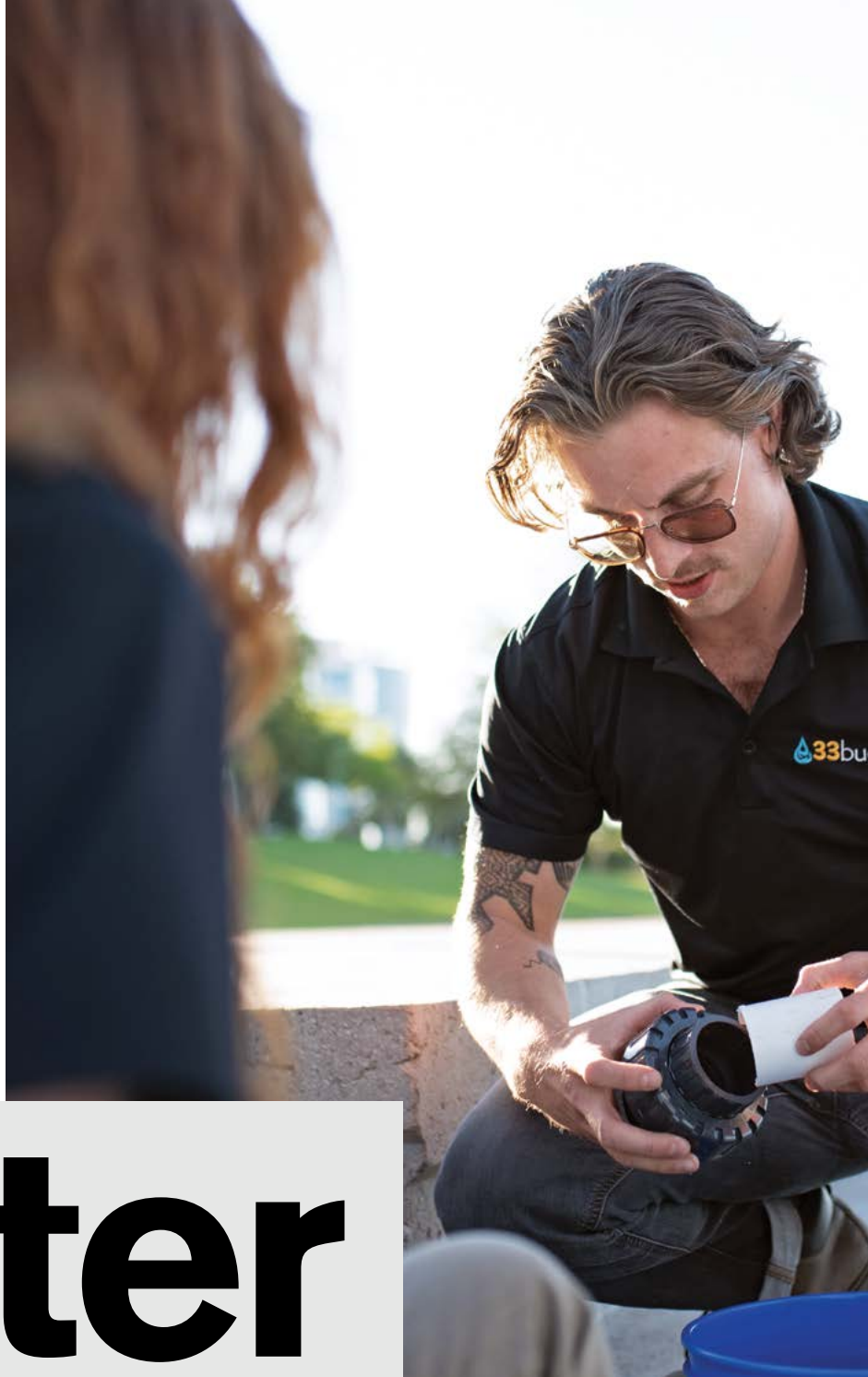
Learn more at newcollege.asu.edu/forensics.

The partnership with the Arizona Supreme Court will build on forensics and create new opportunities including research, internships and pathways into careers in forensic science and psychology.



From the classroom to the villages of Peru, students put their engineering skills to work to build clean water systems

Story by JENNIFER KITE-POWELL
Photos by COURTNEY LIVELY, '07 BIS
IN INTERDISCIPLINARY STUDIES



Water matters



Daniel Hoop has been involved with 33 Buckets since 2017 when he was a student. He's now executive director of the nonprofit that has helped 15 communities build clean water systems.

Adam Westmoreland stepped out of the vehicle into the dramatic landscape of Peru. And he took a deep breath in the thin air at 10,000 feet in elevation.



For the next three months, he and other student interns for the nonprofit 33 Buckets would collaborate with the people of Cusco, Peru, to improve water treatment setups. The nonprofit partners with small, rural communities to engineer a customized plan for access to clean water. In 2015, three then-ASU students started 33 Buckets: Mark Huerta, '13 BS and '15 MS in bioengineering, '19 PhD in engineering education; Swaroon Sridhar, '17 BS in bioengineering; and Paul Strong, '13 BS and '14 MS in mechanical engineering, '18 MBA.

Now directed by a different mix of alums with the help of ASU students and Engineering Projects in Community Service, the nonprofit continues to help address clean-water access issues in Peru in collaboration with local communities.

The collaborator: Erin Burgard

When Erin Burgard was 14, she attended a summer camp at the Barrett Summer Scholars program and heard Huerta talk about 33 Buckets' work.

"I had no idea what I wanted to do with my life before listening to Mark talk," Burgard says. "I remember feeling passionate about how they worked side by side with communities to make change."

Seven years later, Burgard, now an environmental engineering junior at Barrett, The Honors College, was the 33 Buckets aquaculture project and development intern on the ground in Cusco this past summer. It was a role she prepared for throughout the 2021–22 school year ahead of the trip.

Burgard says she came away with a new awareness of what it takes to create long-term sustainable water infrastructure.

"It takes a lot of collaboration," Burgard says. "It takes mayors

"You can't build anything lasting until you understand the impact of those changes on the community. It has to be something they can manage without an organization when you leave."

— ERIN BURGARD, ENVIRONMENTAL ENGINEERING JUNIOR AT BARRETT, THE HONORS COLLEGE

to accept the project, water managers to agree to meet, people to coordinate transportation, translators to help with Indigenous languages, time, planning and faith that it will all work out."

Burgard says a typical day in her life as an intern was the team working on their laptops at a local restaurant going over interviews with the community, setting up new meetings and creating outlines for future interviews. She and the interns also conducted technical assessments on systems, such as residual chlorine levels, flow rate and reservoir measurement.

How did she use her engineering skills? "I took data samples of the chlorine levels by filling a test tube with the water, adding a reactant and putting it into a chlorine checker and forming conclusions about how to proceed to further the system's success," Burgard explains.

It's the memories of the people and the places that most stick with her.

"One of my best experiences

was working in the community; a family would serve us a lunch of potatoes while we sat on a bench in their backyard in the middle of the Andes Mountains," she says. "Everything in Peru is very colorful — the woven work, jewelry, clothing and even the Cusco flag is rainbow. The city of Cusco is like a maze with cobblestone streets and walls made of large rocks. It often smelled like burning palo santo wood and a classic Peruvian taste jugo de maracuyá, which is passion fruit juice.

"But something that influenced my thoughts when I was in Peru was how much the communities expressed gratitude for us being there. You can't know who will remember the information you gave them, but maybe one person will remember and decide to become an environmental engineer, get a degree and come back to the community to continue the process and make change."

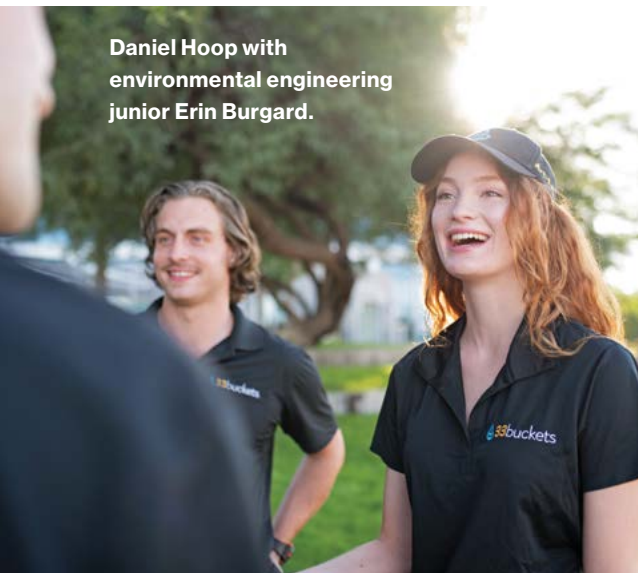
She also understands now what solutions in collaboration with the community mean: "The idea that you can't build anything lasting until you understand the impact of those changes on the community. It has to be something they can manage without an organization when you leave," she says.

The director: Daniel Hoop

Daniel Hoop, '20 BS in environmental engineering, has been involved with 33 Buckets since 2017, first as a student intern through ASU's EPICS program. He's now the 33 Buckets executive director and says each community they work with is unique, and

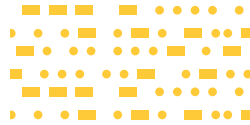


Daniel Hoop with environmental engineering junior Erin Burgard.





From top: Daniel Hoop and interns carrying out a technical assessment in Collana. 33 Buckets team members and water managers in Antaccasa. 33 Buckets SICLOP water-purifying system. Intern Erin Burgard being embraced by Ruth Milagro after a WASH (water, sanitation, and hygiene) workshop in Tотора.



communities in a shared region like Cusco often face similar issues in scope.

“The contaminant of concern in many of these communities is *Escherichia coli*, more commonly referred to as *E. coli*. It’s the primary bacteria that chlorine treatment systems address,” Hoop says.

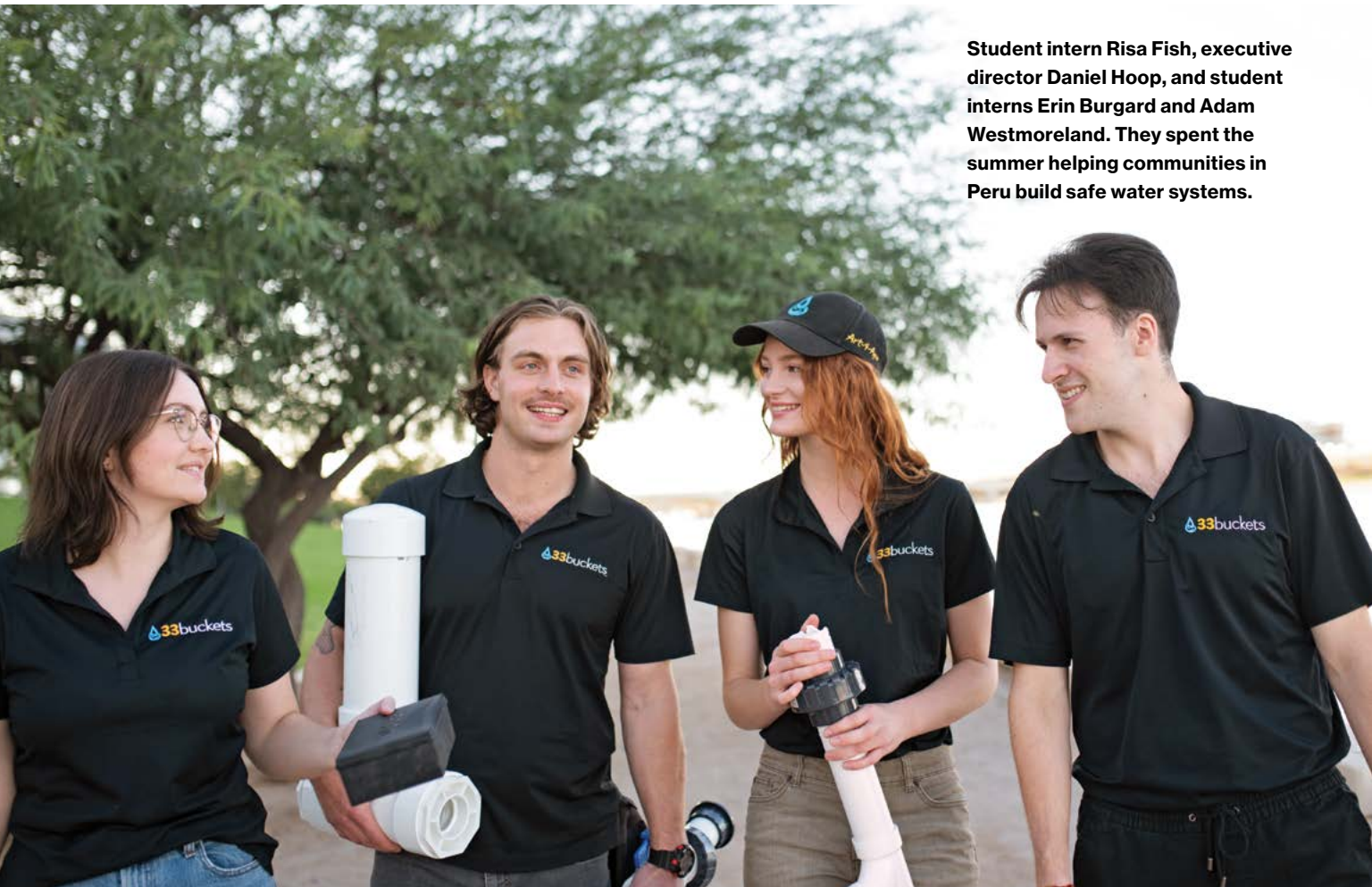
Hoop says they most commonly see communitywide chlorine drip systems. For communities without clean water systems, 33 Buckets helps them set them up. For others,

“The contaminant of concern in many of these communities is *Escherichia coli*, more commonly referred to as *E. coli*. It’s the primary bacteria that chlorine treatment systems address.”

— DANIEL HOOP, 33 BUCKETS
EXECUTIVE DIRECTOR, '20 BS IN ENVIRONMENTAL ENGINEERING

the nonprofit helps improve the current system to make the water taste better and the design work better with less maintenance. And for yet others, Hoop says that 33 Buckets has developed a novel system called Sistema de Cloro Peruano.

But first, the team listens to the community through formal interviews to hear about challenges, limitations and needs, which is fundamental to human-centered design.



Student intern Risa Fish, executive director Daniel Hoop, and student interns Erin Burgard and Adam Westmoreland. They spent the summer helping communities in Peru build safe water systems.

The humanist:

Adam Westmoreland

In the summer of 2021, Westmoreland, now a chemical engineering junior at Barrett, The Honors College, traveled to Peru under pandemic conditions with Hoop. During his first trip, he focused on physically prototyping a new water treatment system, known as SICLOP, versus improving the existing chlorine disinfection system.

“The SICLOP addresses shortcomings of the previously used chlorine drip systems,” Westmoreland explains. “It has a much lower demand for adjustments to maintain consistency and automatic response to different water flow rates into the community’s reservoir to match the amount of chlorine needed for disinfection.”

In the summer of 2022, Westmoreland continued his work from that village and processed data from Siclop to ensure it was still effective. He also began assessments with other communities.

Westmoreland says he felt prepared for his work in Peru despite not knowing what that work would be. Through ASU’s community service course, he learned the process of human-centered design. “The first step in this process is to gather key insight from stakeholders. And that is what I did during my first summer in Peru.

“My first day, we were taking community assessments of a community in the Cusco region called Titora to understand better what was and wasn’t working with

the communitywide chlorine drip system,” Westmoreland explains. “This feedback shaped our work on the prototype, and that feedback guided the requirements we held ourselves to as we designed the system. Once we agreed on a suitable design, I was part of the physical construction of the system, which only took about three days between securing necessary parts and putting it all together.”

Westmoreland says his 33 Buckets experience profoundly changed him. The most significant change that stands out for him after two trips to Peru is how much more open he has become. “The power of working very closely with those you are trying to help and serve greatly impacts you.”

Pragmatically, Westmoreland says 33 Buckets does a great job listening to people’s needs.

“The main job of the people in these communities is agricultural work. They don’t get paid to manage the water system; it is all voluntary,” Westmoreland explains. “The priority for any new water treatment system [there] needs passive management where possible with the least amount of adjustments made to the system per day, week or month.”

The advocate: Risa Fish

Risa Fish is a senior at Barrett, The Honors College. She is working on her public service and public policy degree in sustainability. Her thesis, “The Integration of Human-Centered Design into Policy Systems to Create Long-Lasting Sustainable Change,” grew from



Engineering Projects in Community Service Director Jared Schoepf teaches students about human-centered design.

Impact and scale

Students across ASU make a difference through the Engineering Projects in Community Service. With mentoring and guidance, student teams design, build and deploy systems to solve engineering-based problems for charities, schools and other not-for-profit organizations. Last academic year, more than 500 students worked on 65 projects in Arizona in the Valley and rural towns like Clarkdale and around the world.

“EPICS challenges students to think differently about problems through human-centered design thinking,” says Jared Schoepf, EPICS director. “They are not waiting until graduation to make a difference, they are making a difference for our community partners today.”

Schoepf himself was part of EPICS and in 2013, SafeSIPP, which he co-founded, was named a top five finalist in the College Entrepreneur of the Year competition run by Entrepreneur Magazine.

Learn more about EPICS at epics.engineering.asu.edu.



Students Adam Westmoreland and Risa Fish dispense water for testing.

Get involved

Learn more about 33 Buckets at 33buckets.org or facebook.com/33Buckets

campaigns, but none with a mission like 33 Buckets.

“On the ground in Peru, I focused on getting to know the people and to see how they would interact with us and each other so that I could better understand them and the importance of the work we were doing,” Fish says. “Getting the opportunity to sit with the community members, even with the language barrier, I could tell how compassionate they all are and how much they care for the people in their community.”

Fish says that process gave her a chance to understand the mission better. “I needed to use that experience to promote 33 Buckets and be a global advocate for water policy and sustainability.”

Fish was in Peru for three weeks. “We arrived there at night, so it was interesting to see the lights flying into Cusco – the city of Cusco is set up to look like a puma, which is a spiritual animal for them,” Fish says.

“One of the days I felt the most hands-on was on our visit to Totorá when we had the opportunity to host a WASH [water, sanitation and hygiene] education seminar for the children in the community,” Fish says.

Fish says she realized they were educating the future leaders of this community and carving

a path for them to one day take over as the water managers of their communities. “This made me feel very thankful and lucky to be there working with people, and it made me realize that we are making an impact at all levels of the community.”

One of Fish's biggest surprises was how appreciative and willing the community was to work with them. “They have so much compassion for people inside and outside their community,” Fish says. “Before I went to Peru, I said the words I needed to say to advocate for clean water. But after working in the communities and seeing the engineering work we did, I felt the words I was saying. It changes the course of their lives to have easy access to clean water.”

Continuing to help

With 5 million Peruvian citizens lacking clean drinking water, improving access continues to be 33 Buckets' mission. The experiences created through the nonprofit are invaluable both for communities and for the numerous students involved over the years, Hoop says. Students get to take the wide-angle view to explore what's out there and what's possible.

“Trying to answer questions like how can I do something meaningful? Or how can complex, expensive solutions be available in rural, impoverished areas? And questions like what should the future look like and how do we get there – and putting those solutions into practice is the best way to articulate why I work with 33 Buckets,” Hoop says. ■



her time with 33 Buckets on the ground at ASU and in Peru.

She didn't start that way. “I've always been interested in sustainability, but I changed my major five times, including a shift from political science and law, before I ended up where I am today,” Fish says.

Fish is one of the 33 Buckets interns who is not an engineering student, as the nonprofit also relies on marketing and fundraising in addition to engineering and chemistry. Fish worked with 33 Buckets as a social media intern, starting first through a remote internship on campus during the pandemic in 2020. Fish had previously worked on social media



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“I am eternally grateful and humbled to be given this opportunity to study at one of the best universities in the U.S.... To be a part of a team that is professional, supportive and lively in everything they do is an honor.”

– AMBER SCHLEBUSCH OF SOUTH AFRICA,
WHO WAS A YOUTH OLYMPIC GOLD
MEDALIST AND NOW NCAA CHAMPION

VICTORY

Sun Devil Triathlon wins sixth national championship

History continues to be written as the Sun Devil Triathlon claimed its sixth straight national title after defeating Queens and Denver at Tempe Town Lake in November. Junior Amber Schlebusch finished first. Senior captain Liberty Ricca took second. For 2022, team members Heidi Jurankova, Schlebusch, Ricca and Naomi Ruff were named to the West Division I All-Region team, and Jurankova the West All-Region DI Freshman of the Year by the College Triathlon Coaches Association.

Learn more about the team at thesundevils.com.

A female athlete in a black singlet with 'ARIZONA STATE' and 'Santini' logos is celebrating, shouting with her mouth wide open. She is holding a maroon and gold jacket. The background is a blurred outdoor setting with a red banner that says 'COLLEGIATA'.

Play like a Sun Devil®

Sun Devils in the Major Leagues

Several former baseball players are 2022 season pros.

62

Balancing athletics and academics

Honors student-athletes go the extra mile.

63



Beach volleyball player Kate Fitzgerald's VBAmerica line is available in ASU campus stores.

Fitzgerald wins Venture Challenges to develop volleyball lifestyle clothing line

Kate Fitzgerald began designing her clothing line on her iPad. “The problem with playing volleyball is that ... you rotate between high school and club and beach and indoor volleyball [teams]. The parents coming to all the games were like, ‘Yeah, I want to support my daughter, but I don’t have anything volleyball-related to wear.’”

She mapped out her business plan, built a pitch deck and presented to ASU's Global Sport Institute and the J. Orin Edson Entrepreneurship + Innovation Institute to receive grant funding, winning \$8,000 to support her venture. She says the money has been “life-changing.” She has used it to finish the licensing process at ASU and have inventory for pop-up events. At an event in September, she sold \$6,000 in gear from her clothing line, VBAmerica.

Learn more about entrepreneurship support at entrepreneurship.asu.edu.

Sun Devils in Major League Baseball

Nine MLB players and two coaches headlined a group of more than 50 Sun Devils in professional baseball worldwide during the 2022 season.



Two of the nine big leaguers made their Major League debuts, Brian Serven and Spencer Torkelson.

The nine MLB players are:

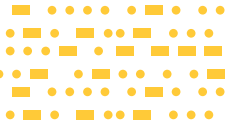
- Austin Barnes, '12 BS, Los Angeles Dodgers
- Ryan Burr, '16 BS, Chicago White Sox
- Kole Calhoun, '10 BIS, Texas Rangers
- Merrill Kelly, Arizona Diamondbacks
- Deven Marrero, '13 BS, Miami Marlins
- Seth Martinez, '20 BA, Houston Astros
- Brian Serven, '19 BS, Colorado Rockies
- Spencer Torkelson, Detroit Tigers
- Trevor Williams, '18 BA, New York Mets

Coaches:

- Dave Hudgens, Toronto Blue Jays
- Pat Murphy, Milwaukee Brewers

Learn more at

thesundevils.com/sports/baseball.



Post-NFL, Kyle Williams pursues career at Mayo Clinic Alix School of Medicine

After the Tennessee Titans cut Kyle Williams, '20 BSE in biomedical engineering, Williams' agent wanted to get the wide receiver onto another team. Williams had a different plan for his life, one that involved healing people. Now, two years later, Williams is a first-year student at Mayo Clinic Alix School of Medicine with the goal of becoming a surgeon.

Williams always had an affinity for math and science. As a student-athlete, he spent time on a field, in a playbook and still graduated with honors from Barrett, The Honors College with a 3.69 GPA. Williams fell in love with medicine while playing football at ASU and meeting Dr. Anikar Chhabra, ASU's head orthopedic surgeon and the medical director for sports medicine at Mayo Clinic in Arizona. The two formed a bond, and in 2017, Williams became Chhabra's research intern.

"Crossing paths with Dr. Chhabra literally changed the trajectory of my life," Williams says.



Alum Kyle Williams at Mayo Clinic Alix School of Medicine, where he is a first-year medical student.

CHARLIE LEIGHT/ASU; SUN DEVIL ATHLETICS



Teammate chemistry fuels men's hoops hot start

The ASU men's basketball team hit the season running with back-to-back wins.

So far, the transfers have provided an on-the-court and off-the-court spark. The Cambridge brothers transfers are senior guard Devan Cambridge and graduate student guard Desmond Cambridge Jr. Both will have big roles as Cambridge Jr. is an additional scoring option and Cambridge starts.

Although the Sun Devils welcomed four new players, chemistry has been good because the players are familiar with each other.

"It's a different group," says Coach Bobby Hurley.

They have a strong foundation of brotherhood and talent to build upon.

— Alfred Smith III, State Press reporter

"When my grades are up, my swimming is going well."

— JAKE MASON, '26 BS IN BUSINESS MANAGEMENT, SHOWN BELOW



Nearly 70 student-athletes balance athletics and academics in Barrett, The Honors College

Barrett, The Honors College at ASU is not only a top-ranked honors college recognized for its academically distinguished student body, but also one noted for its athletic excellence. In the 2022–23 academic year, nearly 70 student-athletes are balancing athletics and academics at Barrett.

Jake Mason, '26 BS in business management, is a first-year student-athlete on the swimming team who says he chose Barrett because the college values academics and athletics equally. "When my grades are up, my swimming is going well," he says.

A member of the gymnastics team, Emily White, '23 BS in biomedical sciences, plans to go to medical school, and says a degree from Barrett will help. It shows her commitment to academic excellence and embodies going the extra mile, she says.



GO DEVILS

For the love of the 'A'

For Dale Clarkson, '56 BS in marketing, the letter on "A" Mountain embodies his love for ASU. The year of his inauguration as student body president in 1955 to 1956, Clarkson and a fellow Devil carried steel up the side of the mountain to cement the "A," that was previously made of loose stone. To honor his Sun Devil pride, Clarkson, now 91 years old, organized a family reunion featuring a hike up the mountain to where the "A" he helped solidify still stands. He was joined by his wife, Patsy, most of his 11 children, some of his 56 grandchildren, one of his 19 great-grandchildren and other relatives.

To learn more about the ASU Alumni Association Traditions Fund that supports the upkeep of this beloved monument, go to asufoundation.org.



Some Clarkson family members hiked to the top of the "A," including from top left, John Clarkson, Tim and Zion Clarkson, Pamela Clarkson, and Chloe and Jane Spring.

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but are you **really seeing me?****

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