

**Musical Bridges** Composers from around the world contribute original works to ASU's Building Bridges through Music Festival, begun by a doctoral student with a passion for connecting people through concert performance. **4**

**Resist the Urge** 'Retail therapy' is the impulse to buy to make ourselves feel better. ASU Professor Naomi Mandel tells us how it works. **18**

**Cybersecurity** Is your information safe on the internet? A donor fights to secure your data. **20**

Spring 2018  
Issue No. 6

# IMPACT

STORIES OF GENEROSITY AND OPPORTUNITY AT **ARIZONA STATE UNIVERSITY**



**Boundless**

**Spirit**

Artists are illuminating scientific concepts thanks to new-venture support that touches all disciplines at ASU.





WITNESS

# First Hand

ASU junior Hadley Griffin overlooks Lough Tay in Ireland, where she studied in 2017. This photo earned Griffin first place for Sun Devil Spirit in ASU's annual Devils Go Global Photo Contest. ASU, which has more than 250 programs in 65 countries, was recognized for its efforts to enable first-generation students to study abroad. See story, page 11.



**WHAT GIVING MEANS TO ME** Gretchen Buhlig finds magic in her job as CEO of the ASU Foundation.

“I have one of the most rewarding jobs in the world, because it’s really just about listening to people and then connecting them with what they’re passionate about through ASU. That’s when the magic happens ... I get to witness the sparkle in people’s eyes when they understand that their generosity has changed lives.”

Ira A. Fulton and his family were honored as the ASU Alumni Association’s 2018 Philanthropists of the Year. As catalysts for the acceleration of the Ira A. Fulton Schools of Engineering and Mary Lou Fulton Teachers College — named for his late wife — along with numerous areas throughout the university, the Fulton family invests in ASU to inspire students, alumni and friends across campus and around the world. Meet Ira Fulton at [engineering.asu.edu/meet-ira-fulton](http://engineering.asu.edu/meet-ira-fulton).



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At ASU, entrepreneurship is a skill and a mindset. Education and support touch every discipline.

FEATURE

Marketing professor Naomi Mandel explains why we seek solace in retail therapy.

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ASU keeps its promises to the people of Arizona and beyond. See how.

ON THE COVER

Photo Illustration by Sean McCabe

PHOTO COURTESY OF ASU NOW



**HARMONIOUS** Young violinists in the Harmony Project Phoenix prepare for a performance. The organization's students participated in ASU's Building Bridges through Music Festival.



# Sound Bridge

“With so much division in our society, it is essential to celebrate the moments that connect people from all walks of life. I can think of few better ways of achieving that than through music,” says Melanie Brooks, an ASU doctoral student in wind conducting and founder of the Building Bridges through Music Festival on the Tempe campus. ¶ Brooks conceived of the festival in 2017 when she received funding from the School of Music to collaborate with the Harmony Project Phoenix, a nonprofit that gives lessons and instruments to students in low-income communities. She commissioned ASU student composers to write mini-concertos to be performed at ASU and in south Phoenix. ¶ This year, generosity enabled the scope of that partnership to grow. In addition to grants from the Graduate and Professional Students Association, 21 composers from around the world donated original compositions written for the Harmony Project students. ¶ Young

student-musicians from the Harmony Project, Brophy College Preparatory school in Phoenix, the POTER Inc. youth music program for refugees and the Niños de La Guadalupe Villa del Campo music school in Tijuana, Mexico, joined together at ASU for a free public performance, complete with a grand finale of Beethoven's “Ode to Joy.” ¶ Inspired by the musician-benefactors, Brooks started a publishing company, Leading Tones Music LLC, which supports and promotes the music of unpublished composers, including those who donated pieces to the festival. Leading Tones focuses on mixed-ability-level concertos, echoing Brooks' passion for bringing people of different backgrounds and skill levels together through music.

“With so much division in our society, it is essential to celebrate the moments of life that connect people of all walks of life.”

Melanie Brooks, founder  
Building Bridges through Music Festival

PHOTO BY MASATO KUBOTA

## STUDENTS



**Ariana Ruof**

What drives college students to drink to excess? Ariana Ruof '17 helps us understand those impulses as lab manager at the Social Addictions Impulse Lab in Tempe. She has been equipping people to overcome their personal struggles since she was an undergraduate at ASU, where she helped to found Mental Health Awareness Week. The Zita M. Johnson Child Study scholarship, among others, allowed Ruof to have an “incredibly enriched undergraduate experience.” Graduating debt-free will enable her to pursue a doctoral degree at ASU.



**Elizabeth Tellman**

Hoping to reduce landslides and flooding in poor rural communities, Elizabeth Tellman, a doctoral candidate with ASU's School of Geographical Sciences and Urban Planning, designed flood detection systems that will foster better flood mitigation and adaptation strategies in developing countries. Her efforts in this

field earned Tellman second place among several dozen candidates from 18 countries for the Allianz Climate Risk Research Award. Tellman, the recipient of the Echoing Green and Gilbert F. White graduate fellowships, among others, founded Cloud to Street, a company striving to reduce flood vulnerability around the world.



**Ewan Morton**

As a graduate student, Ewan Morton

works to stop the progression of climate change due to the release of carbon dioxide. But that's not the only challenge she's taken on at ASU. As a woman of color in the male-dominated field of engineering, she also works to overcome stereotypes. “It has become an increasing passion of mine to show girls that the STEM field is possible,” says Morton, the 2018 recipient of the Dr. Martin Luther King Jr. Servant-Leadership Award and president of the Black Graduate Students Association. Scholarships are enabling her to pursue those passions debt-free.

### HOOLEST GUYS ON THE BLOCK Team invents relaxing earbuds



Imagine what you could accomplish without stage fright or performance anxiety. Nicholas Hool, Sami Mian and John Patterson, students in the Ira A. Fulton Schools of Engineering, are creating earbuds that help people control their nerves by emitting electrical stimulation to the vagus nerve, which activates the body's relaxation response. Their company, Hoolest Performance Technologies, earned the \$100,000 grand prize donated by Avnet, an electronics company, at the ASU Innovation Open venture-funding competition. See how ASU creates a fertile environment for entrepreneurs, pp. 12–17.



**Nathan Newman**

How can science illuminate the creation and exhibition of art? ASU engineering professor Nathan Newman believes scientists and artists share “an unbridled passion” for their work and an appetite to create. He shared his perspective on art materials as seen through the lenses of physics and materials science as guest curator of the ASU Art Museum’s exhibition, “Material Beauty.” Newman, who holds the Lamonte H. Lawrence Professorship in Solid State Science, examined such concepts as the connections between chemistry and physics and the way the human brain discerns color, facial recognition and visual perspective.

**Kimberly Marshall**

“I want audiences to hear the many possibilities of sound and to appreciate the fantastic music that has been composed for the organ over the centuries,” says Kimberly Marshall, the Patricia and Leonard Goldman Endowed Professor in Organ at ASU. Marshall is renowned worldwide

**DEFENDING FREEDOM****Clinic to Focus on First Amendment**

Journalists, students, and citizens seeking to understand their rights to free speech, free assembly and a free press will have a new resource this fall, when the Sandra Day O'Connor College of Law launches its First Amendment Legal Clinic. Made possible by a gift from the Stanton Foundation – established by former CBS president and free speech advocate Frank Stanton – the clinic will be led by Professor James Weinstein, the Dan Cracchiolo Chair in Constitutional Law. Weinstein has written extensively on the First Amendment, and has frequently defended free speech rights.



for her performances and expertise in medieval music. She recently inaugurated a new instrument, built in the style of a medieval “Blockwerk,” in Amsterdam’s Orgelpark, a performance space for organ music. At ASU, Marshall oversees a robust concert series on ASU’s Fritts organ, crafted by influential builder Paul Fritts, who constructs organs using the same exacting methods as Europe’s finest builders of the baroque period.

**Milton Sommerfeld**  
When a neighbor

asked Milton Sommerfeld, an ASU professor in biological sciences, to evaluate the scum in his pool so it wouldn’t return, it sparked a four-decade career that culminated in Sommerfeld serving as co-director of the Arizona Center for Algae Technology and Innovation, the first national test bed for outdoor algae cultivation. When Sommerfeld died last year at 76, he left a legacy as a leader in the study of algae biofuels and biproducts, earning him the title, “The Wizard of Ooze.” To honor him, the Sommerfeld family, colleagues and students established a scholarship to advance students pursuing algae research.

**The ability to study the biology of an attack without needing an actual heart could lead to new and better therapies for a leading killer in the U.S.**

**Arizona State University’s** biomedical engineering researcher Mehdi Nikkhah is creating the first “heart attack on a chip,” a micro-engineered chip that mimics a human heart following an attack. The ability to study the biology of an attack without needing an actual heart could lead to new and better therapies for a leading killer in the U.S. ¶ Nikkhah’s research efforts earned a \$500,000 CAREER award from the National Science Foundation, which he believes appreciated the biological detail included in the study (he works closely with a cardiologist), but also its education

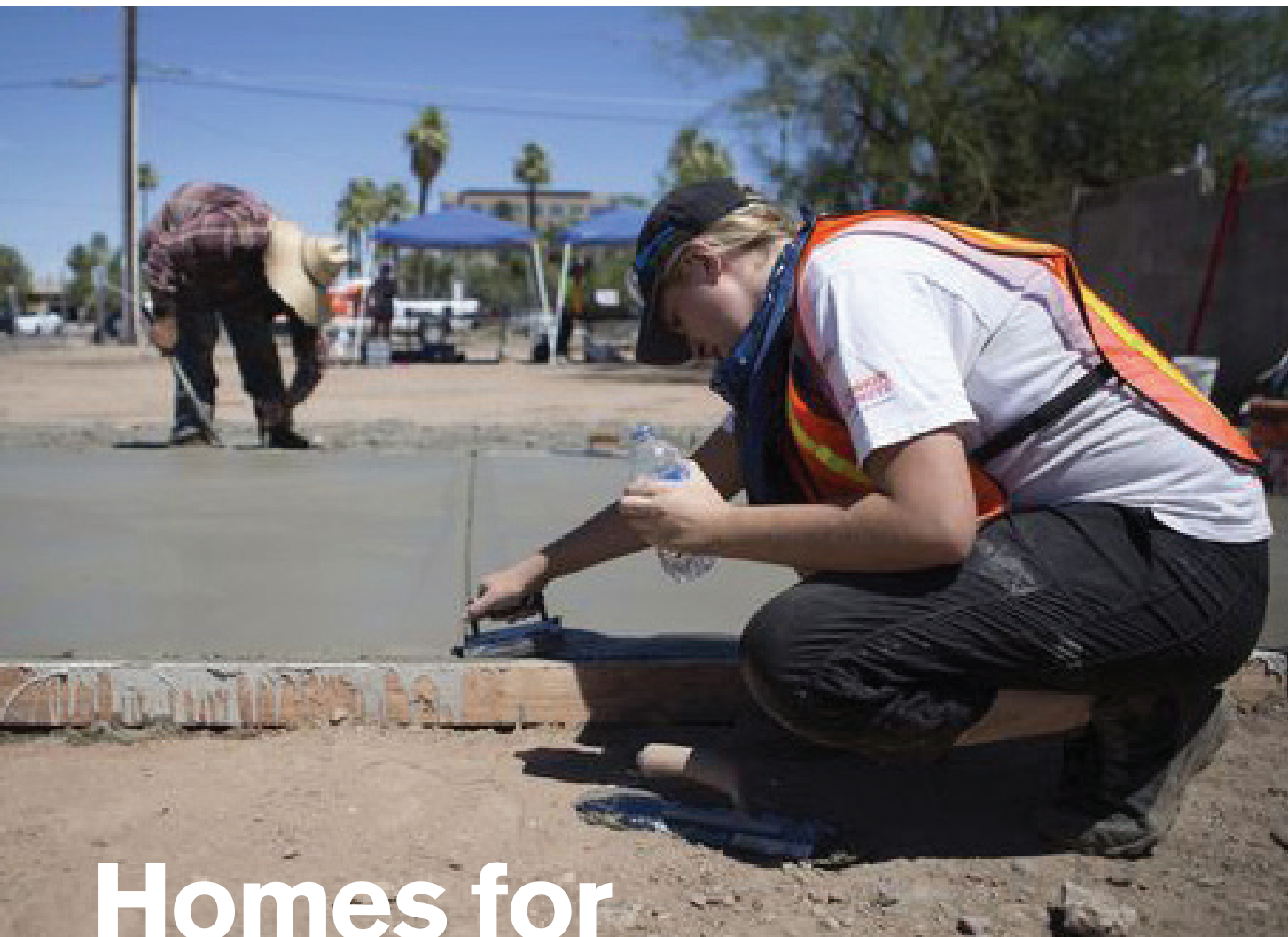
# Heart Attack

and outreach component. Nikkhah worked with Tirupalavanam Ganesh, assistant dean of engineering education, to include workshops for underrepresented high school students to work in Nikkhah’s lab. “Including a diversity of ideas and a population that has not come to engineering before really helped in the proposal, considering the NSF wants the end result to be a nation of innovators,” says Ganesh, who receives support for his outreach and retention efforts from ASU’s Women and Philanthropy fundraising group. ¶ Other current research interests in Nikkhah’s lab lie at the interface of micro- and nanotechnology, advanced biomaterials and biology. The lab provides an active learning and highly collaborative environment for students to gain hands-on experience in not only tissue engineering, but also microscale platforms, polymer synthesis and cancer research.

PHOTO BY JESSICA HOCHREITER

**KING OF HEARTS** Assistant Professor Mehdi Nikkhah, above, has created an active learning environment for diverse students.





# Homes for Veterans

On an empty dirt lot at 13th Avenue and Buckeye Road, volunteers gather to hang drywall, stuff insulation or do whatever needs to be done to complete three “tiny” homes taking shape there.

While the typical American home is around 2,600 square feet, tiny homes are between 200 and 600. Proponents embrace them as a way to reduce housing costs or their carbon footprint.

Mackenzie McGuffie, a volunteer at the site and a senior in ASU's School of Sustainability, loves this tiny home project for a different reason: It combines her passion for sustainable development with the opportunity to alleviate homelessness among the Valley's veterans.

The homes are a project of Singleton

Community Services, a Phoenix nonprofit that sees its tiny home project — Build Us H.O.P.E. — as a solution to the lack of affordable housing available to veterans.

McGuffie and a team of ASU students worked to ensure that each home adheres to best practices in sustainable development. The team is part of the ASU chapter of Greenlight Solutions, which pairs students with nonprofits or businesses so they can collaborate on sustainable solutions to community challenges.

McGuffie, the recipient of the Stardust Center Scholarship, among others, said scholarship support enabled her to devote time to extracurricular projects, giving her invaluable real-world experience.

A team of ASU students, also including Sage Hanson, Ben Strouse, Junkee Ahn and Kristen Hinshaw, worked with volunteers, above, on homes for veterans.

PHOTO BY JOHANNA HUCKEBA

**Special Book, Special Spaces**  
In 1787, Alexander Hamilton asked his fellow Founding Fathers James Madison and John Jay to join him in authoring essays under the name “Publius” to support ratification of the U.S. Constitution. The arguments initially ran in newspapers and were published in book form in 1788. ¶ The first



edition of “The Federalist Papers,” or “The Federalist,” was limited to 500 copies, one of which was acquired in 2017 by ASU's new School of Civic and Economic Thought and Leadership. ¶ “The Federalist” will be housed in the ASU Library, currently undergoing a major reinvention, most visibly in the remodeling of Hayden Library, ASU's largest, most-visited library. Aided in part by private support, the library will serve as a showroom and showcase for the university — a place that is accessible, inspiring and perfectly suited for the educational events engendered by “The Federalist.” ¶ “We can do all kinds of events with these special books,” says Paul Carrese, founding director of the school, who already has introduced “The Federalist” to local schools and community members. “The university is very supportive of the idea of not just hiding them away in the archive.” ¶ Together, the university and its supporters are ensuring that everyone has access to learning about the fundamental principles and ideas that led to the formation of our country.

PHOTOS BY ANYA MAGNUSON (TOP); COOPER HSIN (BOTTOM)

## IMPACT ROUNDUP

### The Story of America

At first glance, a hip-hop musical and an interdisciplinary research venture don't appear to hold much in common.

But when the hit musical “Hamilton” played at ASU Gam-mage this spring, it fostered discussions about egalitarianism, inclusion and the idea that the American dream belongs to us all — ideals that are the focus of ASU's Center for the Study of Race and Democracy, aided by private support. The center's annual Delivering Democracy Lecture continued that discussion in April when it hosted author Van Jones, a former special adviser to President Barack Obama, who spoke on participatory democracy.

### Turning Points

Native American students make up less than 1 percent of all college students in the U.S., a statistic ASU is trying to increase through enrollment and retention programs, several fostered through donor support. This year, Native students at ASU pioneered the first magazine produced by Native American students for Native American students titled, *Turning Points: A Guide to Native Student Success*. Covering topics such as creating a sense of belonging, cultural teachings, fashion, cuisine, wellness and more, the *Turning Points* staff distributes 3,500 copies to self-identified Native students on all four

ASU campuses and to Arizona's 22 tribal leaders. In addition to providing compelling and resourceful content, the magazine hopes to demonstrate the measures that ASU takes to ensure the success of all Native American students.

**Men2Men** The national conversation on women's dignity drew more than 100 men to a conference co-sponsored by ASU's Project Humanities this spring. At “Men2Men,” participants discussed ways to advance respect and ethical behavior toward women. Project Humanities, in part through private support, uses such events to foster understanding and build community.

*Turning Points* is produced for Native students by Native students at ASU. See it online at [issuu.com/turning-pointsmagazine](http://issuu.com/turning-pointsmagazine).







The SHOW Clinic provides services to those who lack basic health care. ASU students from across disciplines serve at the clinic.

## Transformative Learning

There are nearly 42,000 incarcerated individuals in Arizona. More than 95 percent of them will return to their homes and communities, where they parent an estimated 53,000 children. Thanks to the Arizona Inside-Out

Prison Exchange Program, released individuals receive support and guidance in their quest to reintegrate into society. ¶ The program, offered by the College of Public Service and Community Solutions' School of Criminology and Criminal Justice and funded through private support, places ASU students inside a classroom in the medium security section of the Arizona State Prison Complex in Florence, about 65 miles southeast of Phoenix. The ASU students, called "outside students," join with incarcerated men, or "inside students," to study issues of crime and justice. They work from the same syllabus and complete the same academic requirements. ¶ Under the guidance of Kevin Wright, associate professor and director of the Center for Correctional Solutions, the first class created three programs to aid incarcerated individuals: a re-entry packet to prepare ex-prisoners to reintegrate into society, a family reunification program and a class that educates incarcerated men on the effects of crime on victims. All three programs have been implemented by the Arizona Department of Corrections. ¶ Immersive learning and authentic interaction between inside and outside students have been transformative for both, Wright says: "I believe both sets of students leave class inspired to positively impact others around them."

### IMPACT ROUNDUP

**Filling a Need** More than 25,000 people experience homelessness in the greater Phoenix area every year. Many lack basic health care. ASU students from across health care fields have joined forces to fill that need through the SHOW Clinic, where they provide health care to the homeless in downtown Phoenix. SHOW, or Student Health Outreach for Wellness, a collaboration between Arizona's three state universities, has developed an innovative, team-based approach to health care. With the help of private support, students provide supervised care to a vulnerable population.

**Troubled Water** Sixty-three million

people, nearly a fifth of the country, were exposed to potentially unsafe drinking water multiple times during the past decade, according to a major multimedia investigation conducted by students in Carnegie-Knight News21, a multi-university journalistic initiative headquartered at ASU's Walter Cronkite School of Journalism and Mass Communication. With the help of numerous benefactors, including the Ethics and Excellence in Journalism Foundation and the ASU Foundation's Women and Philanthropy, Carnegie-Knight News21 has emerged as a national leader in guiding journalism

students toward in-depth digital media reporting.

**Saving Food Supplies** Locusts can be harmless, solitary insects until environmental factors transform them into a ravenous flying horde that reduces vegetation to ruin. ASU biologist Arianne Cease is devoted to understanding those triggers and preventing swarms before they ravage food supplies. *Popular Science* magazine named Cease one of its Brilliant 10, which honors the brightest young minds in science. Her team's work led ASU to launch the Global Locust Initiative, the world's only repository of locust-related study and a focus of

the School of Sustainability's efforts in Campaign ASU 2020.

**Spirit of Community** Four elementary schools in hurricane-battered Puerto Rico received 12 boxes packed with 1,500 school supplies this spring thanks to a collection drive by ASU faculty, staff and students. Spearheaded by School of Transborder Studies Associate Professor Maria Cruz-Torres, and Irma Arboleda, the school's assistant director — both raised in Puerto Rico — the drive encompassed ASU's Tempe and West campuses.

# Access to the World

More first-generation students are experiencing the benefits of studying abroad thanks to a scholarship program that both equips them financially and prepares them to navigate new environments.

ASU's Planning Scholars award program has allowed more than 150 first-generation students to study abroad since 2015. The program was recognized with the 2018 Excellence in Diversity and Inclusion in International Education Award from the Diversity Abroad organization.

The program provides more than money. All scholars attend workshops covering topics such as how to find additional funding,

choosing the right program and dealing with homesickness. Additionally, workshops cover issues important to first-generation students, such as not adding extra time to college and helping their families appreciate the value of the experience.

The Planning Scholars program was launched by Kyle Rausch, assistant director of the ASU Study Abroad Office, as part of his doctoral dissertation. Rausch, a scholarship student himself, received the Linda Brock Scholarship, established by alumna Linda Brock to support students in Mary Lou Fulton Teachers College.

ASU sent about 2,500 students abroad last year, an increase of nearly 40 percent from four years ago, and has been committed to widening access to students from all kinds of backgrounds.

A shady lane in Dublin, Ireland. This photo earned ASU student Hadley Griffin third place in the Devils Go Global Photo Contest.



PHOTO BY BEN MOFFAT

PHOTO BY HADLEY GRIFFIN





Dancers perform at "Science Exposed: Bringing Science to Life through the Arts," at ASU's Biodesign Institute. Helping to stage the event was Catalyst Creative, an arts-focused business fostered by entrepreneurship support that touches all disciplines.

# Entrepreneurial University

By Melissa Bordow



Phil Weaver-Stoesz needed a change of scenery.

A master's student in theater, Weaver-Stoesz wanted a break from a performance class, so he took a walk. Starting from the west end of the Tempe campus, home to most of the arts buildings, he headed east until he wandered into unfamiliar territory: ASU's science and engineering hub.



**Phil Weaver-Stoesz**

He soaked in the landscape: engineering workspaces, planetary exhibits, biology labs.

Then Weaver-Stoesz had a revelation.

Behind those walls, scientists and engineers unravel the mysteries of the universe, yet we often know little about the impact of their work. Perhaps a theater student is just the person to help scientists communicate complicated research to the public.

There was the seed of a business idea: Create an enterprise that makes scientific research visible and understood in engaging ways.

"In the arts, we're trained to be storytellers," he says. "I looked at all those cool things and I wanted to get involved."

But Weaver-Stoesz had never started a business.

He pitched his idea anyway to theater program leaders. They channeled him into entrepreneurial development programs in ASU's Herberger Institute for Design and the Arts overseen by Professor Linda Essig, director of the institute's Enterprise and Entrepreneurship Programs.

Today, that business is Catalyst Creative, which specializes in science communications and impact. Its projects are diverse, from staging a concert in the Phoenix Botanical Garden butterfly garden for families with autistic children to collaborating on an immersive stage show of a lunar habitat, which ran for two days in ASU's Galvin Theater to tell the story of ASU's NASA-funded space projects.

The story of how he transformed a walk across campus into Catalyst Creative points to a defining characteristic of ASU: Entrepreneurship education and support take place in many and varied ways, for anyone interested in learning how to start a venture, and in all corners of the institution.

Gone are the days when entrepreneurship education was confined to business and engineering school curricula. You're as likely to find

students discussing lines of credit or the merits of strategic planning in the School of Film, Dance and Theatre as you are in the W. P. Carey School of Business.

"At ASU, the resources are ubiquitous and support for entrepreneurship touches all disciplines," says Ji Mi Choi, associate vice president advancing entrepreneurship and innovation.

It's more than a skill, it's a mindset and part of ASU's culture, an evolution made possible, she says, by consistent and pervasive messaging and support. ASU provides a vast array of opportunities geared toward nearly any interest, idea or audience.

That means support is available for those who don't see themselves as entrepreneurs, or who may even be intimidated by the entrepreneurial process.

Which is about 90 percent of us, says Brent Sebold, who oversees two of ASU's enterprise-wide startup support and venture funding initiatives as well as entrepreneurship support in the Ira A. Fulton Schools of Engineering.

A small subset of the ASU community is actually engaged in starting a business and seeking venture funding, and is immersed in the myriad requirements to launching a startup: business plans, market research, prototypes, technology requirements, seed funding, venture funding, to name a few.

ASU is well-equipped to up that game, Sebold says.

At that level, many register with Venture Devils, a comprehensive, rolling program that mentors entrepreneurs through the go-to-market process and into a network of funding competitions that enable everything from ideation to startup to venture funding.

But many more are engaged on the front end, learning why and how to develop an entrepreneurial mindset. The venture development side is actually a small piece of a much larger picture. Regardless of where someone lands, ASU offers training and support that prepare them to play at a higher level.

As Choi says, it's about supporting the growth of curiosity, helping people build connections and creating value from ideas.

The following are snapshots of opportunity on the spectrum of entrepreneurship at ASU.

## THE ARTS

When Weaver-Stoesz brought his idea to Essig in the Herberger Institute, he was starting at the low end of the learning curve, he says. Fortunately, Essig could steer him into both curricula and programs designed to teach the principles of entrepreneurship.

The institute is a microcosm of ASU, she says, offering differentiated support through a range of programs that meet students where they are on the spectrum.

Through a grant to the institute funded by Women and Philanthropy, a group of ASU donors who pool their gifts each year and direct support to promising initiatives, Weaver-Stoesz spent a semester in the astrobiology lab of Sarah Walker, an assistant professor in the School of Earth and Space Exploration, immersing himself in the science and developing a theater production to showcase her work.

He dived into mentoring and training offered through HIDA's entrepreneurship program, learning the art of business development: how to protect intellectual property, develop a business plan and market services.

"I absolutely did not know how to do any of that before," he says. "My energy tends to be like a giant gas cloud that explodes. Linda [Essig] told me, 'You need to crush that into a diamond, and here's how.'"

Essig says arts students and working artists need to be equipped to proactively manage and promote their own careers rather than rely on cultural organizations, which are shrinking in size and number.

Essig and colleagues in the institute are engaged not only in program and curriculum development but also in conducting research in arts entrepreneurship. They recognized research needs a dedicated outlet, prompting them to launch Artivate: A Journal of Entrepreneurship in the Arts, the first scholarly journal to focus on the emerging field of study.

Additionally, the institute published The Arizona Arts Entrepreneur Toolkit, a comprehensive collection of digital tools to support the business side of a creative practice that includes resources, step-by-step instructions and templates. Eight-hundred students downloaded it in the past year alone.

## HEALTH CARE

For a long time, Rick Hall lived in two worlds.

By day, he taught health leadership courses and directed health innovation programs in the College of Nursing and Health Innovation.

On his own time, he founded health-care startups.

ASU gave him the opportunity to merge the two with the recent launch of the Health Entrepreneur Accelerator Lab (HEALab), an entrepreneurship accelerator based on the Downtown Phoenix campus focused on health-care solutions.

As director, Hall brings an entrepreneur's perspective to HEALab, where students, faculty, staff or community members can access an array of resources to help them bring health-related business concepts to market.

Sometimes, those resources come in unexpected ways.

Like the time Hall discovered that a working group at the Polytechnic campus already used the name HEALab.

Like any good entrepreneur, Hall took what many consider a negative and turned it into an opportunity. He learned that the Polytechnic lab was composed of undergraduate app developers.

He happened to be mentoring Wilman Vergara, a master's student in health-care innovation who developed the idea for Knosis Health, a wellness app that incentivizes people to proactively manage their health and health care. Vergara had developed a business plan and patented the idea. He just needed someone to develop the app.

Hall asked the Polytechnic HEALab to join forces, and its students agreed to develop the Knosis app technology free of charge.

"He was able to tap the resources that exist across ASU," Hall says. "This is an actual example of the good ecosystem we're dealing with."

Hall is expanding that ecosystem by inviting business leaders throughout Arizona's health care industry to shape the direction of

health-care innovation. He created an advisory board whose members contribute expertise and funding to HEALab initiatives.

"They've all been through the process and trials of starting up a business, and to help someone get through the pain faster is something they're excited about," Hall says.

## THE NEW JOURNALISM

For Retha Hill, innovation is a two-way street.

As director of the New Media Innovation and Entrepreneurship Lab in the Walter Cronkite School of Journalism and Mass Communication, she is as eager to help her students consume technology as she is to help them create it.

The lab is a place where students experiment with others' inventions so they can understand their potential for storytelling. Take, for exam-



**Retha Hill**

ple, hologram technology that powers augmented reality. They'll learn it inside and out, and use it to tell stories in new and innovative ways.

Students then partner with computer engineering, design and business students to develop their own digital media products and entrepreneurial ventures.

Hill calls this process "sandbox innovation."

It's made the Cronkite lab a fertile environment for new media ventures.

Hill points to several businesses begun by students, such as Terrainial, a Scottsdale-based film and documentary production company that uses 360-degree video and virtual reality to tell stories; Buzzly Media, a social media marketing agency that offers both strategy and analytics; and the Arizona Center for Investigative Reporting, a non-profit media organization that produces in-depth digital news content.

Cronkite graduates Chandler Longbons and Emma Totten began cultivating the idea for Buzzly while still students and brought it to fruition as their senior capstone project. Curricula and programming helped them hone their business plan, understand their market and navigate complicated legal paperwork, says Totten, currently CEO of Buzzly. Longbons has since moved on from the company.

As important was having Hill — who is also an entrepreneur — come alongside them as a voice of experience and encouragement.

"There are so many obstacles to starting your own business and one of them is people will tell you not to do it," she says. "They'll say, 'Get a job first and start a company later, when you're more experienced.' Retha basically tells you the opposite. She'll say, 'You can do this, and here's how.'" (Continued on p. 17)



# Sharing the Rewards of a Culture of Innovation

Arizona State University's investment in research has grown to more than \$500 million per year, creating more than 120 startup companies since 2000 that have attracted more than \$700 million in private investment capital. Yet there has been no clear avenue to provide ASU's most committed supporters — its donors and alumni — with unique access to investment opportunities available through their affiliation with America's No. 1 university for innovation.

Until now. Introducing the ASU Thunderbird Investor Network. Jeff Mindlin is vice president of investments for the ASU Foundation, one of the five subsidiaries of ASU Enterprise Partners. Mindlin says, "As a top-tier research university, ASU provides a tremendous amount of support for our students to gain the experience in entrepreneurship and innovation they need to become leaders in industry."

"Similarly, SkySong Innovations (another Enterprise Partner), provides ASU faculty with intellectual property management and technology transfer, allowing ASU's ecosystem of discovery to have broad societal impact. However, we've never had an organized pathway to support ventures by alumni after they've left the university."

Mindlin says the ATIN will invite ASU- and Thunderbird-affiliated investors, primarily alumni, to become part of that ecosystem of discovery, connecting them with the university's most promising entrepreneurs and visionary ideas as they enter the marketplace.

## BUILDING THE NETWORK

To maintain credibility and trust within the network, investors must be accredited and have an affiliation with ASU or Thunderbird. They may be donors, alumni or their parents and grandparents, and faculty or staff. Similarly, a startup applying to be considered for funding must have a direct ASU connection: a founder, board member or C-level executive who is an ASU or Thunderbird alumnus or alumna. Based on this shared connection, the ATIN provides a mechanism for introducing these ASU-affiliated ventures to network members.

## ESTABLISHING TRUST

The ASU Thunderbird Investor Network relies on a robust infrastructure of qualified individuals to support its mission of fostering innovation in the ASU community. The operating team comprises dedicated, expert personnel and resources who manage the network, assisting with company research as well as with coordination between investors and companies.

Members of the advisory board are representatives of the Thunderbird School of Global Management and Thunderbird Angel Network, the ASU Alumni Association, ASU Entrepreneurship + Innovation, SkySong Innovations and ASU Enterprise Partners. The board provides high-level, expert strategy, governance and mentorship.

Student teams — graduate students from ASU's W. P. Carey School of Business and Thunderbird — will assist the operating team in evaluating companies using the latest in academic research and techniques. The students benefit from real-world experience in the venture capital market, while providing potential investors with state-of-the-art vetting services and unique, fresh insights.

## CONFIDENCE THROUGH CONNECTION

The strength of the network is the connections it creates between the best-qualified advisers and managers and the most up-to-date investment research, amplified by the national and international footprint of ASU and Thunderbird.

When a prospective company submits a proposal for consideration, the ATIN Operating Team will review the proposal to ensure it meets applicable investment criteria and weigh its viability against the appetite for investment. A student team, supervised by university faculty and working under the direction of the operating team, will carry out intensive research on the prospective company and assemble an investment report which is then distributed to the ATIN.

The company may be invited to make a presentation to the ATIN, which network members may attend in person, watch live via WebEx or review the recording online. Members will have the ability to ask for additional information before deciding whether to invest directly in the prospective company. If a prescribed number of members invest and/or capital is raised, a sidecar fund from the ASU Foundation will co-invest with members to provide additional funding to the company.

Rick Shangraw, CEO of ASU Enterprise Partners, says, "We see big ideas taking shape every day at ASU, and we watch as their creators prepare to become leaders in their fields. We're delighted to now be able to make the benefits of their entrepreneurship available to the ASU community through the ASU Thunderbird Investor Network."

For information on the ASU Thunderbird Investor Network, visit [alumni.asu.edu/support/invest-asu](http://alumni.asu.edu/support/invest-asu).



Students prepare scenes that will illuminate the science of space exploration.

## ENGINEERING

In one respect, developing entrepreneurship support at ASU is like starting a business: It's a process of learning what works and what doesn't.

"Luckily, because of our character, we're way ahead of the curve," says Brent Sebold, who knows the landscape well as director of two university-wide startup support initiatives and those within the Ira A. Fulton Schools of Engineering.

He points to venture funding competitions run by the Fulton schools as examples of what works: the eSeed Challenge and the Ashton Family Venture, both funded by ASU engineering alumni.

Each fills a niche in developing early-stage student ventures, he says, an important part of any support ecosystem.

The eSeed Challenge was founded by Tom Prescott, who has held management and executive roles in the medical device and medical technology industry. It's designed for students or faculty members with a prototyped product or solution. Participants must prove and develop their business model through three highly competitive phases. Winners receive up to \$6,000 and the chance for an all-expense-paid trip to advance their vision.

The Ashton Family Venture, founded by John Ashton, principal of the risk management firm Ashton Tiffany, also provides up to \$6,000 and, as important, support to develop a scalable business model.

At this stage, Sebold says odds are slim investors will see a significant monetary return. Instead, their ROI is "a swelling heart," and the satisfaction of investing in the next generation of entrepreneurs.

## BUSINESS

Emre Toker, executive director of the Center for Entrepreneurship at the W. P. Carey School of Business, says the best definition he has

found so far to distinguish between "entrepreneurship" and "entrepreneurial thinking" is this:

Entrepreneurship is the *act* of recognizing and capitalizing on opportunity for economic or social gain, while entrepreneurial thinking is the mindset necessary prior to action.

What characterizes the center is its focus on the *action*, or what he calls "the tip of the funnel, the most dedicated entrepreneurs."

The center, founded more than 20 years ago, is designed to foster entrepreneurship and innovation across all disciplines; it is an entrepreneurial hub based out of the W. P. Carey School.

It provides venture-specific, practical guidance to ASU students, faculty and staff actively engaged in starting a business through a mentor network, entrepreneurship workshops, funding challenges and by connecting ASU entrepreneurs with one another.

For those who want to pursue entrepreneurial skills through curricula, Toker says the W. P. Carey School offers courses for both business and non-business majors.

The school offers a bachelor's degree in business entrepreneurship that prepares students to innovate within a business or launch one of their own. Non-business majors can pursue a certificate that allows them to explore entrepreneurship in the context of their majors, and learn about business planning, testing the feasibility of ideas and funding sources.

At the graduate-school level, W. P. Carey full-time MBA students can choose a concentration in entrepreneurship. Students with start-up business plans are encouraged to participate in the New Venture Challenge, a graduate-level course and competition designed to advance a new-venture concept to the next stage.

## The Right Space



The ability to collaborate and share ideas is crucial to entrepreneurs. ASU has created a network of spaces where aspiring entrepreneurs can collaborate, innovate, ideate, engineer, digitize and build. It even has a mobile unit, the ASU Idea Box, which travels to all ASU campuses to connect students to entrepreneurship resources.



# Buy Something.

Marketing professor  
Naomi Mandel explains why we seek  
solace in 'retail therapy'

By Erik Ketcherside

You won't find "retail therapy" recommended in a psychiatry manual. It's not actually a treatment. But it is widely used, usually self-administered and frequently expensive. Retail therapy is the impulse to buy to make ourselves feel better.

Naomi Mandel knows why it works. She's the Yellow Corporation Professor of Marketing in ASU's W. P. Carey School of Business and an expert in consumer behavior. Her articles in industry-leading journals earned her associate editorships and seats on the editorial boards of several of those same journals, and a 2015 recognition from the Journal of Consumer Research as one of their top authors over the last decade.

Mandel recalls, "I was reading *Spin* magazine — this was in the '90s — and there was an article that had a quote something like, 'The only purpose for a tennis magazine is to make consumers feel so inferior about their tennis game that they have no choice but to go out and buy all of the items that are advertised on the pages of the magazine.' That was a lightbulb moment for me. Here I was, reading all these magazines (especially women's magazines) that made me feel bad about myself, then offered up 'solutions' to my problems via the advertised products — skin creams, makeup, diet products, fashion.

"There's a saying in my field," Mandel says. "You are what you research.' It seemed like a good idea to try to figure out why this was happening to me."

The why was retail therapy; what Mandel calls compensatory consumption. In an article for the JCR, she and her co-authors wrote that one source of a product's value to a consumer is its capacity "... to serve as a psychological salve that reduces various forms of distress..."

And where to apply that salve? On what Mandel and her co-authors call self-discrepancies — "incongruities between how one perceives oneself and how one desires to view oneself." Seeing thin models in fashion ads can lower the self-esteem of a naturally sized viewer. Watching friends get more or better job offers may make a perfectly competent person feel less competent. Knowing their social group is denigrated by other social groups can create a clash between a person's actual and desired social identity. Advertisers eagerly exploit these self-discrepancies to sell us goods we don't need.

Consumers have resources of their own, Mandel says, particularly if they don't like having their self-discrepancies toyed with. "A growing number of Americans are increasingly cynical about

marketing tactics," she says, "and they have an increasing number of tools available to avoid ads completely: internet ad blockers, premium streaming services without ads and so on."

But strap on a thicker shield and someone will invent a sharper spear. "Marketers customize the ads customers see, or capture them at the point when they are ready to purchase," Mandel says, "for example, when they are Googling for a certain type of product. The marketing has become a lot more powerful."

Mandel says the generation growing up in this era of powerful marketing is developing better defenses. "Younger people are more cynical about marketing than their parents. And they are not passively sitting in front of the TV and watching whatever ads come on. They are interacting with media, so it's more of a two-way street." That means the industry is being forced to adapt to reach the younger demographic they crave. "There's a blurring of the lines between the content and the marketing," Mandel says. "My teenage daughter loves watching YouTube videos like makeup application videos, gaming videos, 'unboxing' videos (where people open up the loot they just purchased). Are these videos really entertainment, or marketing or something in between?"

The field of marketing continuously evolves because of its importance to business success. And some successful businesses choose to share that success with the public that made it possible; the Yellow Corporation, for example, which underwrites Mandel's professorship in W. P. Carey. Their support comes with no strings, Mandel says. "The only requirement is that I remain a productive researcher. So their support allows me the freedom to pursue the research ideas I want to know the answers to."

Ideas such as the evolution of marketing — important to researchers like Mandel, as advertisers become increasingly sophisticated in their approach and the technology they wield.

"When I was around five or six," Mandel says, "a Cheerios commercial came on our TV, and I asked, 'Why are they advertising that? We already have it.' My parents always teased me about that because they thought it was so funny, but 40 years later we are almost there."

ILLUSTRATION BY HANNA BARCZYK



# Rattling Cybers

**Talk to Ed Vasko** and you come away worried. Look at the string of letters after his name and you'll know you should be. ¶ Ed Vasko (CISSP) is a Certified Information Systems Security Professional and CEO of Terra Verde, one of Arizona's largest cybersecurity companies with clients around the globe. He graduated from ASU in 1995 with a diploma from the New College of Interdisciplinary Arts and Sciences. He returned in 2016 with a gift – and a warning. ¶ Vasko says we're losing the cybersecurity war "... to individual bad actors selling information via

the dark web; to organized criminal groups stealing massive datasets of individual information to enact fraud; to nation states looking to undermine our social and political systems and critical infrastructure." ¶ Vasko's gift provided seed money for the Cybersecurity Education Consortium on ASU's West campus. CEC's mandate is to address the nationwide shortage of cybersecurity professionals: one applicant for every 10 cybersec jobs available. "This can only change by a concerted effort by industry, government and educational institutions," Vasko says. ¶ Kim Jones is CEC's director. A West Point graduate with 30 years in chief security officer positions, Jones says Vasko is a master of crafting strategy to alleviate threats. "Ed is one of a handful of executives I've met who think about issues holistically, understanding the strategic implications of a solution." Jones' mission, in the center Vasko helped create, is to train cyberwarriors; "people ready and able to defend their personal data, their family's data, their community's data and ultimately, the country's data," Vasko says. ¶ And as each new class of cyberwarriors is ready to be called up, there are multiple positions for them on the front lines. Because the threat is already out there.

**Vasko is on the front line of the cybersecurity war.**

PHOTO BY IVANASTAR (ISTOCK)



**Jack Furst and Trinity Works**

For 10 years, ASU's Interdisciplinary Cluster Competition has allowed honors students to collaborate to solve design problems. Last year, their ideas were incorporated into ASU's reinvention of Sun Devil Stadium, from an athletics facility into a year-round community center. Now, grants from Jack Furst, the 1999 Business School Hall of Fame inductee, and Trinity Works, a real estate development firm known for providing innovative solutions to client challenges, allowed ASU to create a new design-thinking class for all honors students, and provide support for faculty research.



**Elizabeth Holman Brooks**

Those who give to ASU often do so in a way that expresses endearment and acknowledgement to not only the school, but also to those they love.

One of those is Elizabeth Holman Brooks, who established a scholarship in her late husband's name to represent

**A POSITIVE DIFFERENCE**  
**For Students on the Autism Spectrum**



ASU supports one of the largest populations of disabled students in the country, with more than 2,500 utilizing ASU's Disability Resource Center. Now, students have another resource available to them with The LaVelle Family Scholarship, created for out-of-state students on the autism spectrum who want to pursue a career in engineering or nursing.

Donors David and Janice LaVelle say they appreciate the positive difference the center makes in a student's academic career.

ASU has served this population for decades, since disabled veterans chose ASU for their education under the GI Bill.

his service as an Arizona legislator. "Because he was interested in politics, we decided establishing a scholarship in political science would be a marvelous way to honor him," she says.

Calvin M. Holman, who served in the Arizona House of Representatives for a decade, died in an automobile accident in 2007.

So Alison Lewis, who manages her family's S. Rex & Joan T. Lewis Foundation, felt a special kinship to ASU Professor Laura Hosman's SolarSPELL project, a portable, solar-powered digital library that brings e-books and online learning to remote communities devoid of internet access.

The foundation supports Hosman's team – ASU students, university librarians, faculty and staff who develop educational content and maintain the SolarSPELL device, which comes with its own Wi-Fi hotspot and functions without electricity or existing internet connectivity.



**Alison Lewis**

Her parents were avid readers who instilled a love of learning in their children.





### Investment returns

Endowed funds are an important source of revenue for the long-term health of ASU's research, teaching and learning activities, but their returns are not just monetary. Each year, about 30 students gain rigorous, hands-on experience analyzing and managing a small percentage of ASU's endowment assets as part of the Student Investment Management Fund.

Students present their portfolio recommendations to investment professionals – including members of ASU Enterprise Partners' Investment Committee and representatives from its outsourced chief investment officer, BlackRock Inc., which provides portfolio insights to students as part of its new partnership with ASU. After receiving feedback, students execute their strategy within restrictions mandated by the funds' investment policy.

They gain a thorough understanding of academic theories applied to large groups of securities in a course created for the program by Sunil Wahal, the Jack D. Furst Professor of Finance.

Though students

typically produce superior returns, Wahal says the real dividend is the learning they get out of it.



### Starfish Place

ASU is partnering with the city of Phoenix and area nonprofits in one of the nation's first long-term housing facilities for sex trafficking survivors and their children. Under the guidance of Dominique Roe-Sepowitz, director of ASU's Office of Sex

Trafficking Intervention Research, and with grants from the ASU President's Office and ASU's College of Public Service and Community Solutions, interns from the college will help staff the facility and work with tenants and their children. Funding will also enable Roe-Sepowitz's office to evaluate the 15-unit complex, Starfish Place, and its programs to assess its scalability. ASU will also make available to residents five scholarships to its Public Service Academy, a civilian leadership program.

### A STRONG ADVOCATE

#### Editor Champions J-School Students

ASU alumna Nicole Carroll, former editor of the The Arizona Republic, was chosen this spring to helm USA Today, the most circulated newspaper in the United States. While at the Republic, Carroll often used her leadership position to advocate for philanthropic support of the Cronkite school. She was instrumental in encouraging the newspaper to partner with the school on scholarships and a journalism camp for high school students.



**Evidence shows physical exercise** is one of the best ways to stay healthy. ¶ A new, free class at the Lincoln Family YMCA on ASU's Downtown Phoenix campus offers adults with Down syndrome the opportunity to

# Exercise Solution

improve their fitness, socialize with peers and have some fun. ¶ The class, Exercise Program for Adults with Down Syndrome, or ExDS, pairs students from the Exercise Science and Health Promotion program with adults with Down syndrome. Participants engage in strengthening, stretching, balancing and aerobic exercises. ¶ ExDS is the brainchild of Simon Holzapfel, clinical assistant professor in ASU's College of Health Solutions. A former volunteer coach for students with developmental disabilities, he recognized that the community of people with Down syndrome had few options for exercise outside of recreational and competitive sports. ¶ Holzapfel joined with community partners from the DS Network and Aging Matters: Growing Older with Down Syndrome, support and advocacy groups that began promoting the class among their networks. Another partner, the YMCA, made available a variety of exercise equipment. ¶ After raising funds through PitchFunder, ASU's crowdfunding platform, they purchased the program's first exercise equipment: heart rate monitors, dumbbells and cleaning supplies. ¶ The program not only offers an exercise solution for adults with Down syndrome in Phoenix, it also expands the knowledge of students going into the professional fitness industry by providing real-world experience. ¶ "I want to shape our students and broaden their expertise in adaptive exercise and exercise prescription for people with disabilities," Holzapfel says.

**Participants engage in strengthening, stretching, balancing and aerobic exercises.**

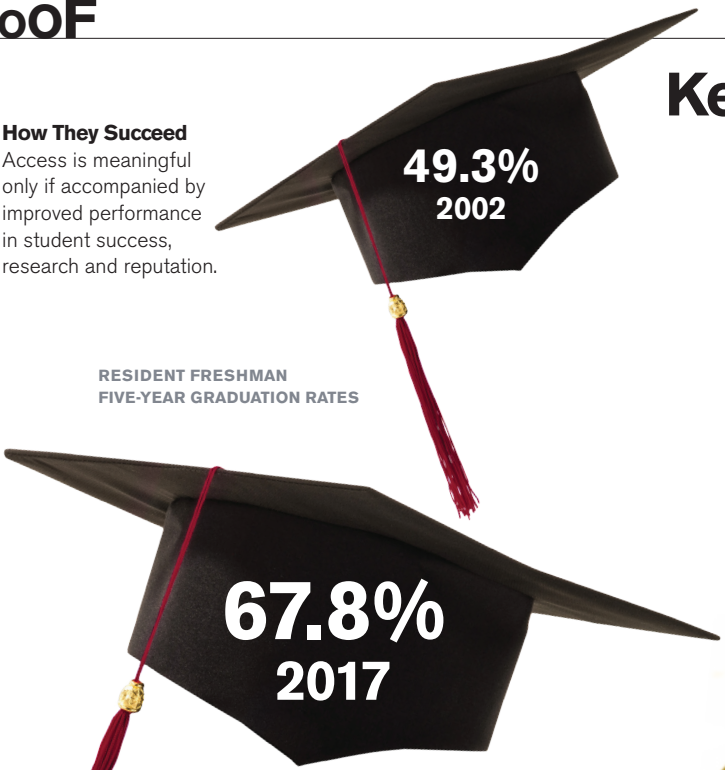
PHOTO BY DEANNA DENT



**BEST MEDICINE** Marcus SanTellan, left, performs sit-ups under the direction of kinesiology student Trevor Weinstock.



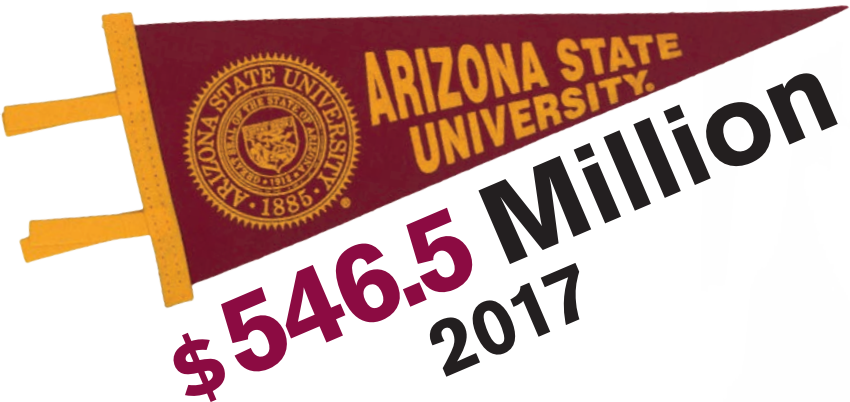
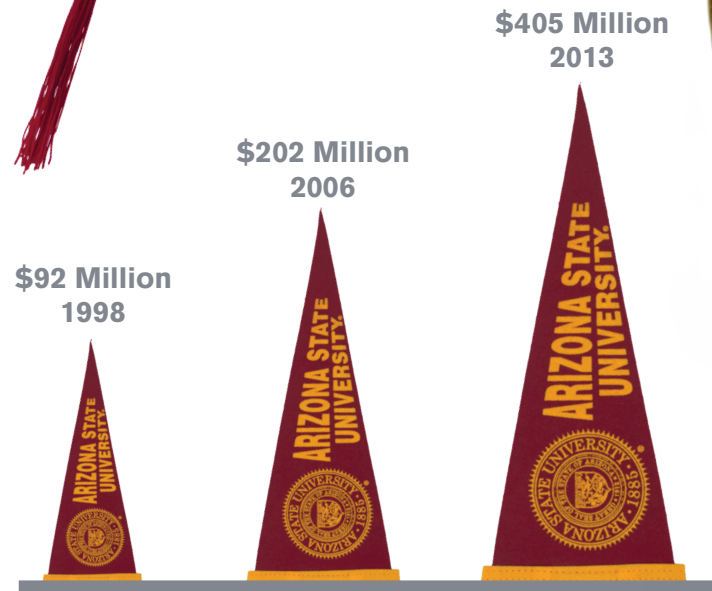
**How They Succeed**  
Access is meaningful only if accompanied by improved performance in student success, research and reputation.



# Keeping a PROMISE

ASU is a comprehensive public research university measured not by whom it excludes, but by whom it includes and how they succeed; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves.

ASU's charter is a promise to the citizens of Arizona and beyond. The university has made great progress in keeping that promise, and continues to transform into an institution that is critical to the success of the region and the state.



**Assuming Responsibility for the Health of the Communities**  
ASU is a major economic driver for the metropolitan area and the state of Arizona

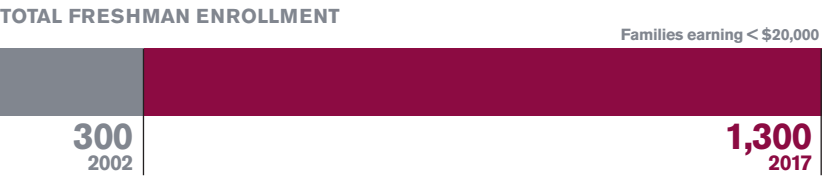
**49,000**  
JOBS

**\$3.76**  
BILLION IN GROSS STATE PRODUCT

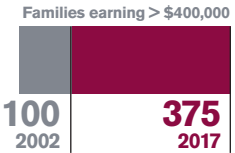
**\$8.9 Billion**  
WAGES PAID TO ASU GRADS IN ARIZONA IN 2015

**\$650 Million**  
ARIZONA TAXES ON THOSE WAGES

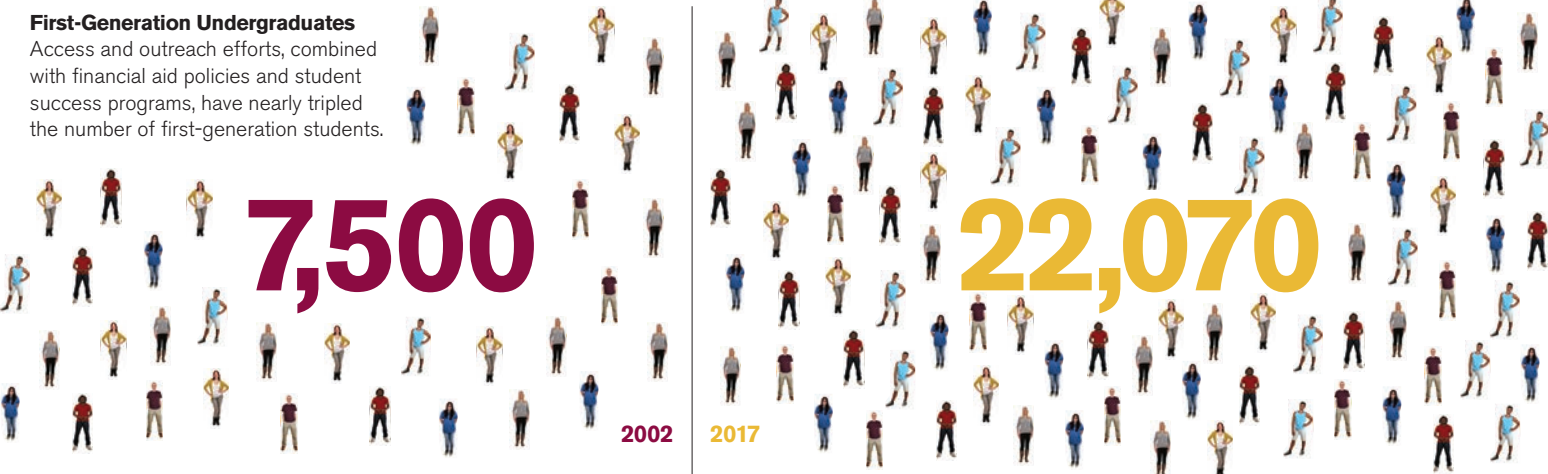
**\$35.4 Million**  
PUBLIC SERVICE ACTIVITY



**Whom it Includes**  
ASU has become far more accessible and attractive to students from families with lower and modest incomes at the same time the university has become a school of choice for students for whom affordability is not an issue.



**First-Generation Undergraduates**  
Access and outreach efforts, combined with financial aid policies and student success programs, have nearly tripled the number of first-generation students.







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