

# ASU

ARIZONA STATE UNIVERSITY  
VOLUME 23 NUMBER 3

## Thrive®



Spring Commencement 2020  
[Watch the video](#)



# Navigating the challenge together

ASU Alma Mater Song  
performed by the  
Devil Clefs  
[Watch the video](#)



**STRESS TESTING  
OUR GLOBAL  
FUTURES**  
Vulnerability in a  
connected world

**RESEARCH  
INNOVATION**  
Testing, vaccine  
research and more—  
highlights of ASU's  
response to the virus

**A RETURN  
TO HER PEOPLE**  
A Sun Devil braves  
the COVID-19 front  
lines in Navajo  
territory



**ASU**  
Arizona State  
University



Inside the  
Luminosity  
Lab work  
to make PPE  
[Watch the video](#)



“ I remember when it was unveiled. I felt like this was — for the first time — this was my moment. ”

Julissa

As a 2018 graduate of the Starbucks College Achievement Plan, Julissa McWashington earned her degree from ASU in organizational leadership and works for Starbucks on the Law Enforcement Strategy and Outreach team. She is a board member at Wellspring Family Services for low-income families and an after-school program called After-School All Stars. Her oldest daughter, 18, has completed her freshman year in college.

Five years ago, Starbucks announced the Starbucks College Achievement Plan — a groundbreaking new effort to help partners attain a first-time bachelor’s degree through Arizona State University’s online program. Today, more than 14,000 partners are participating and nearly 4,500 have graduated from the college plan with 100% tuition coverage.

See how Starbucks changes lives at [starbucks.com/college](https://starbucks.com/college).



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**CHIEF CREATIVE OFFICER, PUBLISHER**  
Jill Andrews '97 BS, '03 MPA

**SENIOR DIRECTOR, EDITOR**  
Lindsay Kinkade

**SENIOR ART DIRECTOR**  
Heidi Easudes

**FEATURES STORY EDITOR**  
Kari Redfield

**ART DIRECTOR**  
Danielle Knotts

**PHOTOGRAPHER PRINCIPAL**  
Jarod Opperman

**DIRECTOR, NEWS AND STRATEGIC COMMUNICATIONS, ASU NOW**  
Penny Walker

**COPY EDITOR**  
Leigh Farr

**PRODUCTION**  
Chris Myers

**STORY IDEAS AND ADVERTISING INQUIRIES**  
[asuthrive@asu.edu](mailto:asuthrive@asu.edu)

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PO Box 875011  
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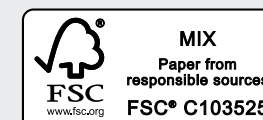
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# Be prepared to innovate

We are up and running. In response to the virus outbreak, we transitioned immediately and completely to a digital presentation format, ASU Sync, meaning synchronous interaction. The entire university with students from all 50 states and more than 100 countries, our digital preparatory academy, ASU Prep Digital and our 11 charter schools didn't miss a single day of school.

What we are seeing, contrary to a lot of other places, is significant positive learning outcomes. We're seeing new ways of teaching and learning. As we navigate this, we're actually a better, stronger, more adaptable, more innovative and more technologically empowered institution.

We now have three modalities in which we create teaching and learning environments in: full-immersion, on-campus technology enhanced learning; synchronous immersion technology enhanced learning; and asynchronous, or online. Learn more about what these modalities offer on page 33.

In addition, we have thousands of research groups, including students, approaching 40,000 people. We have more than 100 core scientists, staff and students working on nothing but COVID-19. They are engaged in new ways of testing, understanding antibodies, genetic mapping, and analytically deriving ways in which we can defeat this thing.

We have one group focused on a paper-based test that allows you to determine the genetic presence of the coronavirus in its present form. We designed and set up a robotic, high-speed test that we're using for first responders and we have more solutions in our research pipelines now.

We are fully engaged, fully locked on target. Our target is to continue the services we deliver, education through teaching and learning, discovery and problem-solving through research. We are doing everything we can to prepare for the future that lies ahead of us.

My message to all of us is to be prepared – to enhance your learning, your innovation capability, your voice with new ideas and new ways of getting things done.

Whatever the future is, we are engaged and we are on it.

**Michael M. Crow**  
President, Arizona State University  
[asuthrive@asu.edu](mailto:asuthrive@asu.edu)

**Go**

**Calendar of events**

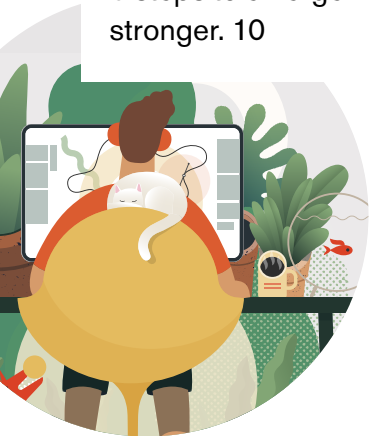
Populate your agenda with upcoming event highlights from ASU, including summer camps, career workshops and lifelong learning as part of ASU for You. 4

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3 steps to emerge stronger. 10



ASU for You provides access to digital resources for all ages.



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CHARLIE LEIGHT/ASU

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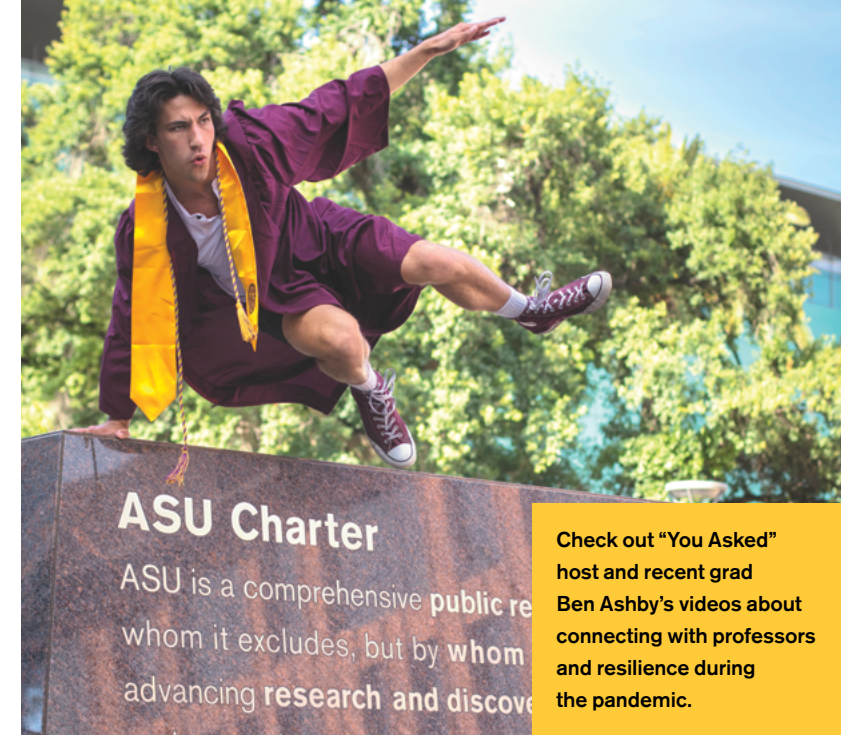
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**Instant innovation**

How ASU students, faculty and staff rose to a historic challenge. 32

ALEX TETZNER/ASU ATHLETICS



**ASU Charter**  
ASU is a comprehensive public re...  
whom it excludes, but by whom...  
advancing research and discove...

Check out "You Asked" host and recent grad Ben Ashby's videos about connecting with professors and resilience during the pandemic.

**"We will adapt and overcome"**  
Grads discuss their transformative time at ASU. 34



**Digital extras and the latest updates**

When this issue of ASU Thrive magazine went to press, the world was in a state of extreme flux in response to the COVID-19 pandemic. To offer you extra insight and to keep our coverage up to date, we are expanding the digital offerings for this issue. We **have additional learning and entertainment resources here** following other Go section events, **additional research highlights here** with our COVID-19 coverage and **new back to campus coverage here**.



From basketball point guard to medical doctor, Michelle Tom has shown great strength in multiple arenas.

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**Reflect**

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# JUNE

## Find your inner peace

The Live Well Stadium Yoga Spring 2020 Series celebrates inclusiveness and wellness for students and community members. Join fellow yogis through video conference. Find a mat, water and a peaceful place in your home to practice. For new students looking to explore yoga, this is your chance to do it in the privacy of your own home.

**Saturday, June 27, 9:30 a.m.** Every Tuesday and Saturday throughout the summer.

[asu365.com/community/union.com](https://asu365.com/community/union.com)

**Free Family Online**



## Summer camps for K–12 learners

Many camps have moved online. Scholarships are available for many and some are offering special discount pricing.

### Art, theater, leadership development and more

This summer, ASU will offer virtual camp experiences designed to spark innovation and creativity. Here's a sampler:

• **Japanese Illustration in 3D.** Campers 13–18 will create traditional Japanese paintings on lanterns and ceramics, plus explore the laser cutter to create a unique canvas for the legendary Yokai, supernatural creatures of Japanese folklore.

• **Acting for the Camera.** Students in grades 10–12 will learn acting basics and practice their craft in front of the camera.

• **Logic and Leadership Virtual Academy.** Students in grades 7–12 will learn to set goals, apply leadership concepts and create productive summer habits.

June–July

For more camps, visit [eoss.asu.edu/access/programs/summer/search](https://eoss.asu.edu/access/programs/summer/search)

**Ticketed Camp Grades K–12 Online**



## Fulton Summer Academy

Calling all coders, builders and makers. This summer, treat your young Sun Devil to a whole new level of fun and learning at ASU's Fulton Summer Academy. Students in grades 1–12 will experience instructor-led engineering design challenges and activities. The virtual experiences will have many of the same elements and activities as in-person camps, but the new virtual platform allows for expanded offerings and flexibility for participants.

Students will work on engineering challenges and will work independently and in groups on projects. Optional evening programming is included in some of the camps and will offer virtual games and team-building activities.

June–July

[outreach.engineering.asu.edu/summer-programs](https://outreach.engineering.asu.edu/summer-programs)

**Ticketed Camp Grades 1–12 Online**



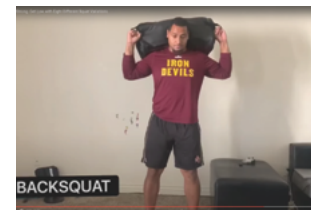
## Vibrant offerings for learners over 50

This summer, stay cool while discovering new interests, new opportunities and new friends through the Osher Lifelong Learning Institute at ASU. By participating in fun, high-quality classes, you can make this summer one to remember. Boost your art savvy in "The Prado Museum of Art," deepen your science know-how in "What is Nanotechnology and How is it Used?" and learn fascinating details about cooking in "Bombshells, Splatterdabs, and Slumgullion: A History of 19th Century Food in the American West" — and much more! There are no tests, grades or educational requirements, just the fun of learning!

Through June 30

[lifelonglearning.asu.edu/registration](https://lifelonglearning.asu.edu/registration)

**Ticketed Age 50+ Online**



## Sun Devils at Home: workouts, updates and more

Get updates on Sun Devil Athletics, at-home workouts and athletics images for your video background.

[thesundevils.com/athome](https://thesundevils.com/athome)

**Free Family Online**



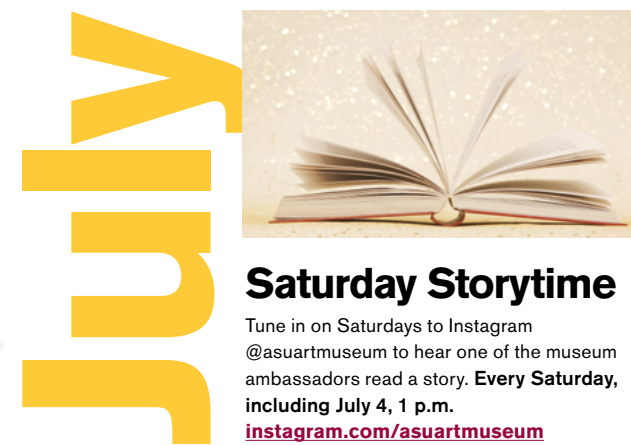
## ASU Gammage Digital Connections: QVLN (Q-Violin) performance

Singer, violinist and composer QVLN plays with an intense understanding of North, Central and South American rhythms, navigating all forms of musical expression with the electric violin. Watch this and other digital experiences at

[facebook.com/ASUGammageFan/live](https://facebook.com/ASUGammageFan/live)

**Free Family Online**

For additional programs, see [asugammage.com/digitalconnections](https://asugammage.com/digitalconnections)



## Saturday Storytime

Tune in on Saturdays to Instagram @asuartmuseum to hear one of the museum ambassadors read a story. Every Saturday, including July 4, 1 p.m.

[instagram.com/asuartmuseum](https://instagram.com/asuartmuseum)

See other digital offerings by the ASU Art Museum [asuartmuseum.asu.edu/programs-and-events/kids-and-family](https://asuartmuseum.asu.edu/programs-and-events/kids-and-family)

**Family Online**

Visit [ASUEvents.asu.edu](https://ASUEvents.asu.edu) for events at ASU.

Visit [TheSunDevils.com](https://TheSunDevils.com) for athletics event and ticket information.

## ASU Gammage updates

Tickets are available for the 2020–21 season and show updates are being posted online. [asugammage.com](https://asugammage.com)

**Ticketed Family**



Upcoming ASU Gammage shows include "Hamilton," "Frozen," "To Kill a Mockingbird," "Oklahoma!," "Mean Girls" and more.

## Check in to online events to earn Pitchforks and rewards!

Log in to the Sun Devil Rewards app for ASU event listings, news, games and more. Earn and be rewarded! [sundevilsrewards.asu.edu](https://sundevilsrewards.asu.edu)



ASU  
for You



## ASU for You: K-12

**For parents:** ASU offers an ever-growing collection of fully interactive online tools, many provided at no cost, to keep K-12 learners and teachers on track while at home.

[ASUforYou.asu.edu/parents](https://ASUforYou.asu.edu/parents)

**For teachers:** We're all adjusting to a new normal, and educators who teach online face unique challenges. We've gathered learning resources from across ASU to help keep students engaged while you're teaching from home. [ASUforYou.asu.edu/educators](https://ASUforYou.asu.edu/educators)

## ASU Prep Digital

An accredited, full-time, online high school, ASU Prep Digital's open-access resources are useful for all K-12 students.

- **Opportunities for high school sophomores and juniors** to earn college credit now.
- **An accelerated path** toward college admission.
- **Online courses and training videos** for parents or teachers still teaching from home. [asuprepdigital.org](https://asuprepdigital.org)



## Summer session

There's still time for current students and those visiting from other universities to enroll in Session B and earn credits this summer. Classes start July 1.

### \$500 summer 2020 award

Admitted ASU students who wish to get started right now on their university education will receive a \$500 award for every three credit hours enrolled. [summer2020.asu.edu](https://summer2020.asu.edu)



## Open Scale courses

General studies courses open to anyone, with the option to convert them to university credit if they later choose. Discounted from \$400 to \$99 now through Aug. 25.

[ontrack.asu.edu](https://ontrack.asu.edu)

# Career



## Career services for life

All ASU alumni have lifetime access to ASU career fairs, webinars, networking and other career development events. ASU is here to help you chart your career path.

[alumni.asu.edu/services/alumni-career-and-professional-development-services](https://alumni.asu.edu/services/alumni-career-and-professional-development-services)

Free Networking Job search

### Job and internship search strategies

Through LinkedIn and Handshake platforms, we will show you how to make the most of your search. All students and alumni are invited to attend. **Monday, July 13, noon-12:45 p.m.**

[asuevents.asu.edu](https://asuevents.asu.edu)

Free Networking

Job search

### Crafting your application: CV to resume

Should you use a resume or curriculum vitae (CV)? What are the differences between the two? Discuss best practices for landing the job. **Tuesday, July 14, 10 a.m.**

[asuevents.asu.edu](https://asuevents.asu.edu)

Free Networking

Job search

## ASU for You: professional development

**Enrich your life with programs and professional development courses** created for those already in the workforce or navigating a career change.

Courses include:

- ASU and Mayo Clinic Health and Well-Being Certificate **Free**
- ASU Startup School, Stage 1 **Free**
- Course in leadership and interdisciplinary studies: The Role of Business [ASUforYou.asu.edu/professionals](https://ASUforYou.asu.edu/professionals)

## We are here for you

**In a period of economic uncertainty and shifting job markets, lifelong access to support and learning can help in navigating the transitions ahead.** ASU offers alumni access to career resources for life and has launched new and expanded resources for lifelong learning through ASU for You and a comprehensive Summer School 2020 program for learners at all levels. There are waived fees, a streamlined application process and financial aid for Arizona residents.

### Interview strategies

Learn more about what to expect in an interview, strategies to answering questions and best practices for follow-up.

**Wednesday, July 15, 10-10:45 a.m.**

[asuevents.asu.edu](https://asuevents.asu.edu)

Free Networking

Job search



### Events for budding and established entrepreneurs

From coffee meetups online to conferences to competitions, whether you are a small business owner or simply curious about entrepreneurship, ASU has many ways you can grow your network and get plugged in; many now in virtual format.

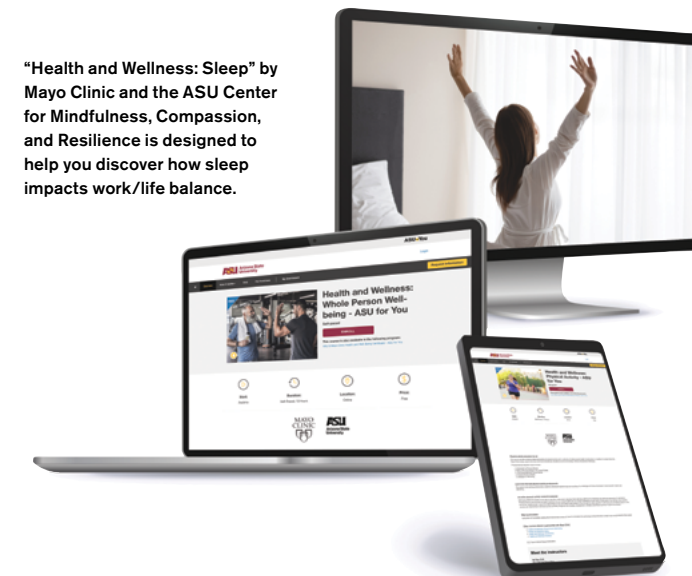
[entrepreneurship.asu.edu/events](https://entrepreneurship.asu.edu/events) **Free Networking**

# Community



## me3® interactive major and career quiz

The transition from high school coursework to college courses is not always a clear path. Learn about majors, degree programs and careers that fit you with me3, an online and app-based interactive major and career quiz. [yourfuture.asu.edu/me3](https://yourfuture.asu.edu/me3)



"Health and Wellness: Sleep" by Mayo Clinic and the ASU Center for Mindfulness, Compassion, and Resilience is designed to help you discover how sleep impacts work/life balance.



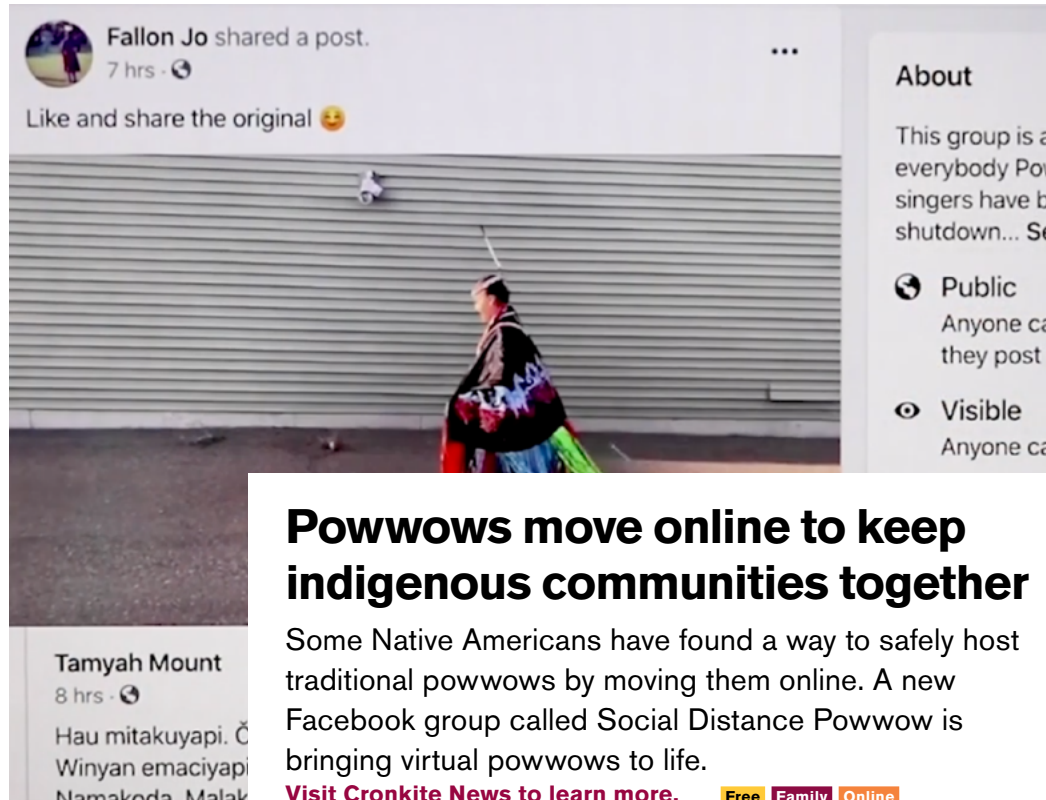
## What is Time?

### Ponder with this playlist

Having trouble remembering what day it is? Us too! ASU Art Museum Director Miki Garcia put together a Spotify playlist, crossing genres and exploring time. Enjoy!

[Click here to listen on Spotify.](#)

Free Family Online



## Powwows move online to keep indigenous communities together

Some Native Americans have found a way to safely host traditional powwows by moving them online. A new Facebook group called Social Distance Powwow is bringing virtual powwows to life.

[Visit Cronkite News to learn more.](#) Free Family Online

## Take in (and analyze) live performances

Enjoy live performances, from original devised adaptations of poems, to jazz music performers to performance art — and work through discussion questions with your children — or enjoy for art's sake.

[Visit herbergerinstitute.asu.edu/cultural-innovation-tools/creative-tools-for-you.](http://herbergerinstitute.asu.edu/cultural-innovation-tools/creative-tools-for-you)

Free Family Online



Jason Derulo kicked off the series in June.

## Summer online concert series

The ASU summer concert series "Live from ASU" was conceived as a way to engage with students and the ASU community during the COVID-19 pandemic. Each concert will be an opportunity to reinforce ASU's commitment to students as well as provide an interactive shared experience with artists.

See the summer concert series schedule at [asuforyou.asu.edu/asu-live](http://asuforyou.asu.edu/asu-live).

Free Family Online



## Unstoppable: Webinar with Anthony Robles

In these uncertain times, we all need a little motivation to get through the day. NCAA wrestling champion, ESPN sports commentator, author, motivational speaker and ASU alumni Anthony Robles shares his strategies for overcoming life's obstacles and staying fit.

[Watch the webinar.](#)

Free Family Online

## Alberto Ríos on the healing power of poetry in troubled times

Resistance and persistence collide in Alberto Ríos' 16th book, "Not Go Away Is My Name," about past and present, changing and unchanging, letting go and holding on. In searching for and treasuring what ought to be remembered, Ríos creates an ode to family life, love and community, and realizes "All I can do is not go away / Not go away is my name." Ríos, Arizona's poet laureate, is the director of ASU's Virginia G. Piper Center for Creative Writing and host of "Art in the 48."

[Learn more in Jose Cardenas' interview with Ríos on Arizona PBS.](#)

[On page 40, Read Ríos' poem "The Morning News."](#)

Free Family Online



[Listen to "We Are of A Tribe," read by Ríos from his new book.](#)

## our tunes vol.1



With artists from Bill Withers to the Beatles to Lady Gaga, the curated mixes soothe and inspire.

## Collaborative playlists for comfort and peace

What song brings you comfort and peace? Check out ASU School of Music Presents: Our Tunes, one of several playlists featuring songs that students, faculty and staff in the school curated in response to the COVID-19 pandemic.

[Click here to listen on Spotify.](#)

Free Family Online



## Coloring book to help manage pandemic anxiety

To help children make sense of the novel coronavirus and its implications, Watts College of Public Service and Community Solutions Professor Paige Safyer and collaborators created the story coloring book "Georgie & the Giant Germ." It is available in English, Spanish, French, German, Hebrew and Arabic.

[Click here to download the coloring book.](#)

Free Family Online

# Advance your career

“You can’t just sit there and wait. Use this opportunity to focus on things that you’ve been wanting to work on for a long time. You still need to be you and find ways to do the things that you’re passionate about.”

— JAIME CASAP

## COPING WITH UNCERTAINTY

### Go after your objectives now

We don’t know how long this is going to last. It could be two weeks, six months, or even 18 months. And what you need to do is get yourself out of the waiting game.

Many people are just sitting there waiting and spending the day watching the news and panicking — and waiting for life to become normal again. And what we need to recognize is that it’s probably not going to happen for a while, so you need to find creative ways to pursue the things you’re passionate about.

Make sure you’re putting together your to-do list and using this as an opportunity to focus on things that you’ve been wanting to learn and things that you’ve been wanting to do for some time.

Read more at [this link](#).

See more of how Jaime is managing through global change on his YouTube channel at [youtube.com/jaimecasap](https://youtube.com/jaimecasap).

.....

**Jaime Casap**, '93 MPA in public administration, is the chief education evangelist at Google. He evangelizes the potential of digitalization as an enabling capability in pursuit of promoting inquiry based learning models. He collaborates with school systems, educational organizations and leaders focused on building innovation into our education policies and practices.

**Never let a crisis go to waste**  
3 steps to emerge stronger.  
10

# Never

LET A

# crisis

GO TO

# waste

3 steps to emerge from this crisis better and stronger

Story by MAY BUSCH



**May Busch**  
The former COO of Morgan Stanley Europe is now an executive coach, speaker, adviser, author and executive in residence in ASU's Office of the President. Watch May Busch's video at [youtube.com/ASU](https://www.youtube.com/ASU).

How are you doing these days? Some people are on what one of my clients calls “the struggle bus.” Others are relatively unscathed. But we’re all feeling the effects somehow.

While it may feel like things could drag on indefinitely, and there’s unlikely to be a clearly marked “all clear” signal, the current situation will not go on exactly as is forever.

Whatever way this COVID-19 situation is affecting you and the ones you love, as the saying goes: This too shall pass.

So, what’s the best way to weather the proverbial storm? Never let a crisis go to waste.

**“The most important question you can ask yourself right now is this: ‘How do I want to emerge from this better and stronger?’”**

As a junior associate experiencing my first financial crisis, I remember one of our senior managers saying, “Never let a crisis go to waste.”

It was his way of reminding us to get out of our narrow view of the world and look at the

bigger picture — to see beyond the immediate panic in order to identify future opportunities and make the changes needed to take advantage of them.

The key is to make the right kind of changes. And that requires some clear thinking on your part.

### 1. The single most important question to ask yourself.

The most important question you can ask yourself right now is this: “How do I want to emerge from this better and stronger?”

This is a powerful question because it instantly pushes you forward to imagine that future point

in time when we emerge from the current situation.

While there’s no precise time frame, I recommend you think of this as at least one month from now and preferably longer. You’ll see why in a moment.

### 2. What does “better” mean for you?

It might be becoming stronger physically and mentally, developing a new skill that will land you a higher paying job, or finally beginning that personal project that you’ve set aside for years, waiting for when you have more time.

There’s no single right answer.

Just what “better” looks, feels and sounds like for you.

### 3. Let your vision for “better” drive your actions.

Your vision for “better” allows you to approach this period of uncertainty from a position of strength. It gives you some certainties around which to anchor your days, make good decisions and motivate your actions so you are generating forward momentum.

So, think about this as the time to be forming new habits and ways of being that will serve you better and make you more effective (and joyful) in the future.

What enduring habits, qualities and attitudes do you want to emerge with?

Don’t wish this time away. Even in moments of struggle, remember that time is precious. Once it’s gone, it’s gone. And your sense of time depends on how you frame it.

Make productive use of this time. Spend some time thinking about how you want to emerge from this crisis better. Then, start taking steps toward creating your better future.

This is your time. How do you want to emerge from this time better and stronger? ■



Get career counseling resources at [alumni.asu.edu/services](https://alumni.asu.edu/services)





HONORING HEROES

In April, Tempe Police Detective Greg Bacon and other volunteers rolled out paint as ASU and the city of Tempe celebrated health care workers and first responders by painting "A" Mountain blue.

# Navigate challenging times

**"Pandemics of this scale were only mentioned in our nursing school books. We are now living one that will forever be written in nursing books for years to come. We will help our community return to health and will help fight this war. We will win."**

— JENNIFER ROQUE, '17 BS IN NURSING, RN, SENIOR CLINICAL MANAGER LEADING A TEAM OF ABOUT 40 NURSES, CNAS AND MONITOR TECHS ON THE NIGHT SHIFT



To learn more about ASU's Health Heroes, see [alumni.asu.edu/healthheroes](https://alumni.asu.edu/healthheroes)

**COVID-19: stress testing our global futures**  
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# The ultimate stress test for our global futures

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## Vulnerability in a globally connected world

COVID-19 must be seen as the largest shock that has hit global society since World War II, spreading disease resulting in an accelerating loss of lives and societal and economic disruptions of staggering proportions. This global pandemic brings into stark relief the increasingly complex, interconnected and vulnerable systems that define the modern world. The world's population was patently unprepared for COVID-19. We knew from previous pandemics that it was only a matter of time before we would be hit by another. Although the exact time and location of these events remain unpredictable, science had suggested how to prepare for such a shock.



**Peter Schlosser** is the vice president and vice provost of the Global Futures Laboratory at ASU. The laboratory has been launched to advance ASU's deep commitment to use-inspired research, its ongoing work in sustainability and service to the global community in which we live.

COVID-19 hit global society like an earthquake, and like an earthquake, we can expect it to happen again, but cannot predict when. This places extreme hardship on most people on our planet because there is little

time to respond with potential for significant loss of human life. Here, we focus on the connection of this crisis to another that is steadily building, although more slowly and on longer time scales: How will a globally interconnected society design, shape and manage its future, in light of all the challenges related to human-induced perturbations of the Earth system?

Possible trajectories of global futures will depend crucially on how the globally interconnected Earth system, including the human domain, can withstand and respond to: (a) known and ongoing changes that frequently occur on long time scales, and (b) shocks that can be anticipated in principle, but whose timing and impacts cannot be predicted. An example of the former are unfolding changes in the climate system and their consequences, including

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*This article is presented by the Global Futures Laboratory, co-authored by Peter Schlosser, Manfred Laubichler, Clea Edwards, Steven Beschloss, Nina Berman, Sander van der Leeuw, Joni Adamson, Michael Barton, Mark Bernstein, Shauna BurnSilver, Gary Dirks, Jason Franz, Nico M. Franz, Nancy B. Grimm, Julianna Gwiszcz, Deborah Helitzer, Carrie Lloyd, Kathleen Merrigan, Osvaldo Sala, Christopher Wharton and Dave White.*

ASU's Biodesign Institute created a clinically approved and certified COVID-19 testing center, a swab test kit production facility and drive-through testing location to support area hospitals.

migration, biodiversity loss, sea level rise, etc. COVID-19 falls into the latter category. This raises the fundamental question: What do we know about the basic dynamics of the globally interconnected Earth system and its resilience to shocks?

### The ultimate stress test

If one was asked to design a stress test to evaluate the current capacity of the Earth system to respond to shocks, the current pandemic could be viewed as the ultimate design. Although such stress tests are not perfect, they offer valuable information on the state of a system, and can guide the enhancement of its resilience to perturbations and/or shocks.

A virus, such as the one that spawned COVID-19, hits at the heart of all human interactions including social contact and behavior. A new virus, with no known treatments or vaccines plus the additional challenge of a very long incubation time, means that

the traditional functions of health care systems — treating illness and making vaccinations available to the population for prevention — do not work. This situation then tests if other societal structures and actions can substitute for the absence of the primary measures that should have buffered the impact of a particular shock, such as COVID-19. Our health systems find themselves in a position of earlier centuries: merely able to care for the sick and isolate the rest of the population. So-called social distancing is the modern equivalent of closed medieval city walls.

Shutdown of all but essential business has caused mass unemployment. Projections are that the economy could shrink by 20% to 30% or more. The size of the needed financial rescue packages grows by the day and will soon surpass state annual budgets or even their annual GDP. Supply chains are disrupted or approach disarray. Anxiety levels are skyrocketing with a real danger of elevated levels of domestic violence and child abuse. It may be only a matter of time until social unrest challenges the power structures struggling to contain the pandemic. These impacts of the pandemic, which rapidly affect the functioning of virtually all parts of the Earth system, raise the central question: Why are our societies not better prepared to respond to such shocks?

### Human preparedness and response to shocks

Viruses do not discriminate based on rich or poor, but people who

**“Can we design systems with the necessary adaptive capacity that decrease the likelihood of pandemics and allow us to react more swiftly and effectively in cases of unpredictable outbreaks?”**

have greater access to financial resources and/or are part of societies with a developed social safety net are better equipped to respond to disruptions such as COVID-19. Many families depend on the income of low-wage laborers whose jobs require them to show up. As a double impact, those jobs put them at the greatest risk of contracting a virus; not only do their jobs lack a work-from-home option, they require human contact. These families are the least likely to afford alternative child care options or medical care to allow them to tend to a sick family member. In the U.S., paid sick leave is available very unevenly, and among those who have health insurance, many have prohibitively high deductibles that

influence decisions to seek testing or treatment.

Historically, pandemics have caused widespread change across social, economic, political and cultural spheres. The pandemics across the Americas that were brought on by European settlers bolstered the colonizers' conquest of land and peoples. The Black Death of the 14th century killed between 75 to 200 million people across Europe and Asia, including approximately 30% to 60% of Europe's population. It had traveled along the Silk Road, thus highlighting the early modern connection between economic and social networks. The loss of life destabilized feudalism, saw rising wages in response to labor shortages and led to reforestation

as a result of vacant land.

Similarly, the consequences for global supply chains and the financial systems have repeatedly been modeled. Why does humankind once again find itself unprepared, ignoring necessary actions to mitigate known problems and bolster response systems?

This current global pandemic resembles climate change. But, unlike the consequences of climate change that will play out most dramatically in a few decades, the systemic shocks we are experiencing offer the chance to rebuild and redesign the system. The question is: Can we get it right? Can we design systems with the necessary adaptive capacity that decrease the likelihood of

pandemics and allow us to react more swiftly and effectively to unpredictable outbreaks?

### Underlying complexity

Understanding if societies are prepared for shocks such as the one COVID-19 presents requires knowledge of the system-level properties that govern these interconnected systems. What matters most are the varied consequences of positive and negative feedback relations in complex systems. Negative feedback exerts regulatory control by keeping systems within certain bounds, while positive feedback allows systems to grow and exploit opportunities. But negative feedback can also lead to stagnation and intransigence



while positive feedback can initiate uncontrolled, runaway effects. Both are clearly important in all complex systems, and those systems that find the right balance are the ones that thrive.

Over the last centuries, most globally interconnected systems have emphasized positive feedback mechanisms by prioritizing innovation cascades. This has led to the ever-accelerating dynamics of globalization and the Anthropocene. Consequentially, this resulted in large numbers of unintended consequences. As certain societies came to value these advances, many nations removed or weakened the negative feedback loops and regulatory functions that kept the dynamics of global society in balance. This created the current deregulated system of our globalized economy and supply chains, fueled by a huge and more deregulated financial system.

The response to this pandemic is an attempt to set up regulatory controls and negative feedback mechanisms at different scales. Mostly, this means setting up boundaries such as isolation and quarantine measures at local, regional and national levels in the hope that people follow the regulations. We now confront significant trade-offs and consequences for national and global economies and public health, as well as individual and social well-being. These actions also expose the lack of adequate institutions at the systems level — that is, global organizations to provide global governance to the global crisis.

### What does the COVID-19 stress test show so far?

If we treat this pandemic as a stress test and observe and rank current responses, we see mostly failure. Failure at the highest levels to prepare for such an outbreak, despite scientific models and lessons from history. Failure to rethink human relationships to wild and domesticated animals. Failure in the nature, timing and scale of the response. Failure to anticipate, and therefore prepare, for the vast array of consequences that such a disruption causes across the tightly interconnected elements of the Earth system. And finally, failure to prepare long-term scenarios that could mitigate the most harmful consequences of immediate actions.

Now that governments are responding with drastic measures to slow the rate of new cases in order to give overwhelmed health care systems a fighting chance, the ripple effects throughout all aspects of social and economic life are growing exponentially. Among them: rising unemployment, decrease in demand and dramatic drops in economic activities, lack of child care and missing school meals, existential threats to key industries such as airlines, not to speak of the effects of increasing social isolation. A scenario where these measures would have to be in place for more than a year — the most optimistic estimate for the availability of a vaccine — seem unimaginable. This may play out more severely in places with weak health care systems, such as in less-developed countries. With no

global governance and a delayed and ineffectual response in several important nations, we remain stuck without plans for an exit strategy.

### Opportunities for optimal future responses

In order to be effective, the suppression and mitigation measures will have to be highly coordinated across the whole spectrum, from local to global. This includes fully transparent information flows and data sharing, the strategic deployments of resources, planned coordinated interventions to support economic activities and triage at all scales. The whole set of responses will

**“How will a globally interconnected society design, shape and manage its future, in light of all the challenges related to human-induced perturbations of the Earth system?”**



have to be guided by strong institutions devoted to shared values and guided by common principles. The fact that nations have radically different political and economic systems — that the world has become more polarized and with more inequality — makes coordination more difficult, but also more necessary.

Viruses are transboundary problems, and thus are an expression of our global interconnectivity. This could be an opportunity to overcome anachronistic nationalistic behavior in favor of global solidarity, inviting transparency and a shared sense of humanity.

As a species, we have chosen economic globalization again and again in varying forms for thousands of years, from the days of the Silk Road and colonial trading networks to today's teleconnected planet. Presently, our system of global interactions is designed primarily to reap the benefits of global trade but retreats into a nationalistic frame in times of crisis. Perhaps we are at a crossroads that highlights that economic benefits cannot be separated from social responsibilities.

Even the initial responses to COVID-19 suggest that all societies may be willing to

respond in ways that have not been seen outside of wartime. But what of coming threats to global futures for all of humanity? Are we willing to confront these with the same sense of urgency, even though the main consequences will be in the future and might not directly affect the majority of those currently making decisions? The answer from the global community, indeed from each of us, will determine whether we only address immediate impacts or recognize the present crisis is an opportunity to design long-term strategies that ensure the healthy, interconnected survival of the human species and our planet. ■



Learn more at [global.futures.asu.edu/news](https://global.futures.asu.edu/news).

# Research innovation

Highlights of how ASU researchers are tackling the pandemic



## Rapid diagnostic testing

In just two weeks, ASU's Biodesign Institute, with a grant from the Virginia G. Piper Charitable Trust, created a clinically approved and certified COVID-19 testing center, a swab test kit production facility that is capable of assembling 2,000 kits per day and supporting area hospitals' drive-through testing. The team also began work on a simple blood test for all seven strains of coronavirus, including SARS-CoV-2, to aid vaccine development, help detect asymptomatic carriers and help understand why some people get very sick and others have no symptoms.

## 1K tests a day

ASU began using a robotic system to speed testing results. It can run 1,000 samples daily.



Collin Schairer, a student researcher at the Luminosity Lab, studies electrical engineering.

## PPE Response Network

Luminosity Lab's PPE Response Network links university and community resources, such as 3D printers and disposable face shields, to health care providers in need. It also helps contributors print, sterilize and deliver personal protective equipment (PPE) to those on the front lines of the COVID-19 response.



Are you a local health care provider seeking PPE? Have a 3D printer and want to help? Reach out at [pperesponse.network.asu.edu](http://pperesponse.network.asu.edu)

## New digital teaching tools quickly launch and train thousands of nurses for ICU



Experts at EdPlus, ASU's digital teaching and learning unit, and the Edson College of Nursing and Health Innovation joined forces with Sana Labs to create a program to cross-train nurses for critical care. New York City's Mount Sinai Hospital had an immediate need, so the fast-track program rolled out to 35 NYC nurses — and is now available to thousands more.

## 100+

core scientists, staff and students organized by ASU to work on COVID-19 near-term and long-term solutions

## 'Let's go save some lives!'

— JOSHUA LABAER, DIRECTOR OF ASU'S BIODESIGN INSTITUTE, IN DAILY MEETINGS WITH TEAMS



Joshua LaBaer

## Computer model clearinghouse

ASU ramped up COVID-19 modeling efforts on the Research Network for Computational Modeling in Social and Ecological Sciences (CoMSES Net), an international clearinghouse administered by ASU.



## Ultraviolet BBQ to sanitize PPE

ASU researchers created a device that delivers the perfect dosage of UVC light to kill the coronavirus in 5 to 10 minutes in order to sanitize PPE, such as N95 masks. Being able to reuse masks is critical, as Arizona hospitals are going through 5,000 to 6,000 a week.



Michelle Tom, '99 BS in microbiology, now a physician, is working on the front line for her native Navajo people in Winslow, Arizona, providing care for one of the most vulnerable populations in the U.S. during the pandemic. Read more on her journey p. 36.

## Entrepreneurship program responds to COVID-19

Peoria Forward, a two-year-old partnership between the city of Peoria and ASU Entrepreneurship + Innovation, shifted into emergency mode to help small business owners navigate the crisis.



## Vaccine race

A week after the first U.S. case of the new coronavirus was confirmed, Biodesign Institute and School of Life Sciences researchers Brenda Hogue, Bert Jacobs and Qiang "Shawn" Chen began work on a coronavirus vaccine. Hogue has been working for nearly 40 years to find answers that will help solve the mysteries of coronaviruses. Today, she is considered one of the world's experts in understanding the structure and behavior of coronavirus proteins.

## Sun Devil giving by the numbers

The ASU Foundation launched the We Care Campaign to raise need-based resources to support the community during the pandemic. A \$2 million donation from the Virginia G. Piper Charitable Trust is supporting rapid testing.

## 950+ donations for emergency funding

for COVID-19 emergency efforts March 20–May 14

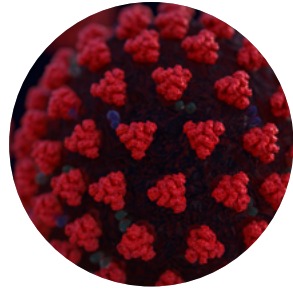
"Knowing that my small contribution will make a big difference ... helps me feel confident that we are in this fight together."

— AN ASU STAFF MEMBER WHO DONATED TO RESEARCH TO CREATE A VACCINE

## Help stamp out COVID-19

Individual donors have and continue to support making a vaccine a reality. Donations may be made at [asufoundation.org](http://asufoundation.org).

## Research innovation



**How do viruses work? Are they alive? How can they be destroyed? Why do vaccines take a long time to make?**

Since the coronavirus pandemic began changing aspects of American life this spring, questions like these have been filling the inbox of one of ASU's most popular scientific resources: the Ask A Biologist website for faculty, students and learners of all ages.

The site contains thousands of pages of biology based games, coloring pages, puzzles, articles and more, with the goal of sharing ASU's scientific knowledge with the world.

Read answers from scientists or ask your own question at [askbiologist.asu.edu/questions/are-viruses-alive](http://askbiologist.asu.edu/questions/are-viruses-alive).

## Technology engineered at ASU 50 years ago helps battle COVID-19

Researchers contributed to the development of medical technology, called extracorporeal membrane oxygenation, or ECMO, that is now helping patients recover from COVID-19. It enables temporary replacement of heart and lung function by pumping blood outside a patient's body, oxygenating the blood and removing carbon dioxide waste, and then returning it to the patient's body. ECMO is also used in heart and lung transplantation. "ECMO has had increasingly broad utility not imagined 50 years ago," says Vincent Pizziconi, the founder and director of the Bioengineering Design Studio in the Ira A. Fulton Schools of Engineering at ASU.



The late ASU Professor William Dorson was among the first to develop technology that would lead to extracorporeal membrane oxygenation, or ECMO.

## Researcher creates home lab to help PPE safety



Michael Kozicki at his home lab that sterilizes medical and PPE equipment.

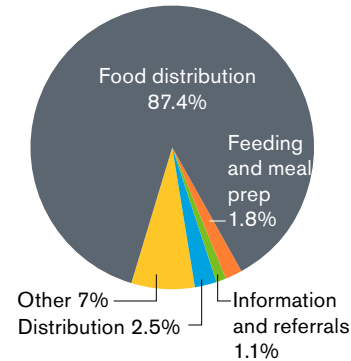
**"I connected with a very talented student team at Luminosity Labs who also had an interest in using ozone to sterilize medical and personal items and had a beautiful low-cost ozone generator designed and built. I helped them characterize this generator and we used it to treat a number of different masks."**

— MICHAEL KOZICKI, PROFESSOR OF ELECTRICAL ENGINEERING, BUILT A LAB AT HOME TO CREATE SYSTEMS FOR OZONE RECONDITIONING OF N95 MASKS AND OTHER SURGICAL GEAR

## Dashboard created to help match resources with nonprofits' needs

The Center for Emergency Management and Homeland Security at ASU is working with more than 300 front-line nonprofit agencies to match needs and resources. Food is the overwhelming need, followed by money, water, hygiene products and volunteers. The center involves students through Emergency Corps at ASU, a program for students to find volunteer, professional or internship opportunities. See the dashboard at [asu.maps.arcgis.com](http://asu.maps.arcgis.com).

### Service types listed



Needs as of June 3

## How nonprofits are creatively confronting COVID-19

Listen to the Thought Huddle podcast with Robert Ashcraft, executive director of the ASU Lodestar Center for Philanthropy and Nonprofit Innovation.



Biodesign Institute researcher Joe Miceli demonstrates the procedure.



Learn more about research and testing at [biodesign.asu.edu](http://biodesign.asu.edu).

## Biodesign Institute develops state's first saliva-based COVID-19 test

In an effort to make COVID-19 diagnostic testing easier, less expensive and more readily available, researchers have developed the state's first saliva-based test, which is as simple as spitting into a screw-top tube through a straw. For the past couple of weeks, ASU's Biodesign Institute has been pilot testing the saliva-based test with its first responder partnership network, showing the test works as well, if not even better, as nose swabs.

## Remote resilience: connecting virtually

Over this period, Sun Devils have been busy living out new possibilities for work and learning. Each Zoom session — a class, office hours, a virtual coffee catchup — has encompassed the learning experiences, collaborative strategizing and personal connections that have helped the university thrive during a challenging time. In a silver-lining turn of events, the move to online meetings has often fostered a greater sense of community because people see into each other's houses and virtually meet kids and animals, and because teams rally during crises.

# 578,372+ Zoom sessions

at ASU from March 16 through June 1. See a summary of the current state of digital capacity to support ASU research and learning at [uto.asu.edu/alt-modality-key-data](http://uto.asu.edu/alt-modality-key-data).



# Forecasting Arizona's economy

What job creation and recovery might look like for the state

Story by CRAIG GUILLOT

Even though the Grand Canyon State experienced record-shattering job losses and economic contraction during the pandemic, there's hope the pain will be short-lived. Strong underlying fundamentals, an influx of stimulus money and ASU's support for innovation could help stave off an extended recession.

Prior to COVID-19, Arizona had one of the strongest economies in the country in terms of population growth and job creation, says Lee McPheters, director of the JPMorgan Chase Economic Outlook Center at ASU. In 2019, the state added a record 80,000 new jobs while wages increased 4.4% compared to the nationwide average of 3%.

"We went from one of the most thriving economies in the country to double-digit unemployment. It's probably the worst we've seen since the Great Depression, but we're following the national cycle," McPheters says.

In the seven weeks ending May 4, more than 514,000 Arizonans applied for unemployment benefits, according to the state Department of Economic Security. The number translates to a 15% unemployment rate, with some of the biggest job losses in tourism, hospitality and restaurants.

Of surprise are the declines in health care, an industry that is often recession-proof. The postponement of elective surgeries (a large source of



Get business resources, including partnership options, at [wpcarey.asu.edu/corporate-relations](http://wpcarey.asu.edu/corporate-relations)

ASU has numerous resources, including free mentoring at [entrepreneurship.asu.edu](http://entrepreneurship.asu.edu)

## A rebounding economy over the next two to three years

During the pandemic, Venezia's New York Style Pizzeria in Tempe, owned by Domenick Montanile, '98 BS in purchasing/ logistics management (pictured), began offering curbside pickup as well as robot deliveries. The business is recognized as a Sun Devil 100.

Arizona is being impacted by the pandemic, but not to the degree of some other states. Arizona is still second in the U.S. for economic growth.

**2.5%** growth in Arizona employment before the pandemic

**-6.4%** job growth for 2020-21

Expected to hit -10.9% in 2020 then rise in 2021 to make up half of jobs lost during the pandemic

**1.5%** increase in new residents in the Valley

including births, down from 2% before the pandemic

SOURCE: LEE MCPHETERS, BASED ON PROJECTIONS ON MAY 11

profit for many hospitals) has taken a toll on health facilities in Arizona and nationwide. Health systems and hospitals across the U.S. are on track to lose more than \$202 billion between March 1 and June 30, according to a report by the American Hospital Association.

Yet, there are some glimmers of hope, especially in knowledge-based industries, biotech and high-tech manufacturing, McPheters says. Some manufacturers have been able to help the response and capitalize on new opportunities by converting facilities to the production of personal protective equipment. For example, one Honeywell facility in Phoenix shifted operations to producing N95 masks, using 150 employees working three shifts, six days per week. Combined with another Honeywell facility in Rhode Island, the company will make 20 million masks per month.

#### A strong startup economy

Entrepreneurship and innovation could also help drive the state recovery, says Ji Mi Choi, associate vice president of Entrepreneurship + Innovation, ASU Knowledge Enterprise. Between December 2019 and May 2020, the number of startups the office works with rose from 467 to 548.

“The adage that necessity is the mother of invention rings true. There is generally an uptick and increase in new business formation that happens after a disturbance,” Choi says.

Some of the potential market opportunities include new solutions to support e-commerce and food delivery, sanitation



**“There is generally an uptick and increase in new business formation that happens after a disturbance.”**

— JI MI CHOI, ASSOCIATE VICE PRESIDENT OF ENTREPRENEURSHIP + INNOVATION, ASU KNOWLEDGE ENTERPRISE

products and services, and remote health applications. As it has for years, ASU will play a strong role in developing and nurturing the innovation economy.

“Universities have a significant talent pool and a way to work with a built-in audience who are already eager, motivated and hungry to make an impact in the world,” McPheters says.

#### Replacing lost jobs

As a basis for his forecast, McPheters follows the Blue Chip Economic Indicators, an organization that has polled top economists each month since 1976. The consensus calls for an extremely weak second quarter with as much as a 35% drop in GDP, followed by a slow recovery in Q3 and Q4 that will recoup roughly half of the job losses.

“It doesn’t get us back to where we were, but we’ll start replacing lost jobs, and then, we’re expecting that in 2021, we’ll recover another 100,000 jobs with job growth in the 4% to 5% range,” McPheters says.

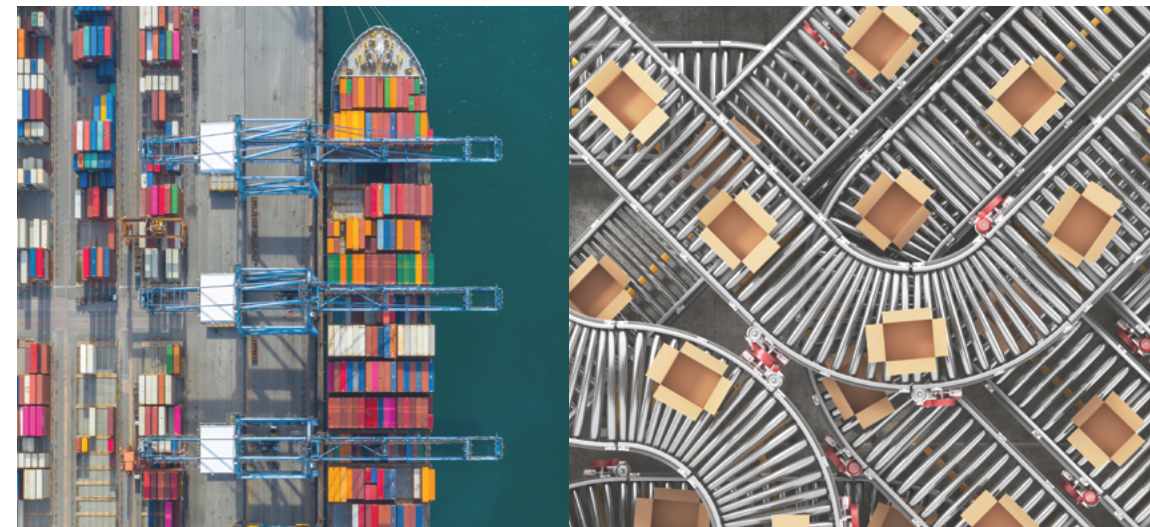
One benefit that has only started to flow into the economy is

the unprecedented stimulus money under the Coronavirus Aid, Relief, and Economic Security (CARES) Act, McPheters says. As of early May, Arizona businesses had been awarded 19,280 Paycheck Protection Program loans for a total of \$4.8 billion.

With solid underlying fundamentals and incoming stimulus funds, there’s a strong case for a V-shaped recovery that will return Arizona as one of the top-performing economies in the U.S. when the public health issues are mitigated, McPheters says.

Yet economists’ forecasts are based on a “huge assumption” that a COVID-19 vaccine will be created in the next 12 months, McPheters says. Some health experts have already cautioned about a second wave of infections that could be worse than the first and could lead to more lockdowns and more economic damage.

“There’s national optimism, but no one knows; we’re in unprecedented times,” McPheters says. “There’s tremendous uncertainty, and we just don’t have any basis for a forecast or a model that tells us what to expect.” ■



# Building smarter supply chains



Every package we order starts out as materials that become components, then manufactured goods that go on to delivery. The chain of events and connections has changed.

#### W. P. Carey experts think big while supporting local business with their worldwide pipelines

In mid-May, Arizona had yet to return to normal product availability. While supply chains have since loosened, some impacts may linger for a long time.

Even though the world has experienced supply chain disruptions from natural disasters and from other viruses in the past, COVID-19 is an “unprecedented global event” that has left many supply chains in limbo, says Mohan Gopalakrishnan, supply chain chair in the W. P. Carey School of Business. It also was the first time many Americans remember seeing bare shelves and stores entirely out of some food products and toilet paper.

“There are some really unique things about this pandemic,” Gopalakrishnan says. “Unlike Ebola, which was restricted to one area, this has quickly spread across the globe.”

Read more at [this link](#).



Watch videos on building your supply chain resilience at [news.wpcarey.asu.edu](#)





For an immersive view of the Valley from the top of Piestewa Peak, showing the clear skies of May [youtube.com/ASU](https://youtube.com/ASU)

The Valley usually ranks poorly for ozone and particle pollution, but pollution levels decreased during stay-at-home orders.

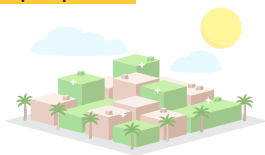
From March 16 to 22, nitrogen oxide emissions (a contributor to ozone) dropped 37% in the Valley compared to the previous year, according to EPA data.

Driving less (through permanent remote working options) and switching to electric cars could help improve air quality after the pandemic.

# Silver linings in sustainability

## ASU has made dramatic on-campus improvements in the last decade

### Campus operations



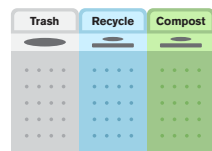
ASU has paired campus efficiency efforts such as smart building systems design and solar farms with carbon offsets to bring **all operations-related emissions to zero**.

### Transportation



Through initiatives including free intercampus shuttles, increased bike lanes and carpool incentives, ASU has **reduced transportation-related emissions by 53%** per person.

### Waste



Through recycling, composting and other Zero Waste initiatives, ASU has **reduced its waste by almost 15%** per person.

### Water



Low-flow fixtures and improved landscaping practices, such as watering plants at night to prevent evaporation, have resulted in a **37% reduction in water use** per person.

Learn more at [sustainability.asu.edu/campus](https://sustainability.asu.edu/campus)



Solar panels cover many roofs on ASU campuses, including this one on the parking garage at Fulton Center on the Tempe campus.

## Leading the way toward a healthier planet

On April 22, on the 50th anniversary of Earth Day, ASU was recognized for notable achievements in its ongoing commitment to sustainability leadership. Times Higher Education released its annual Impact Rankings of the world's universities based on 17 United Nation Sustainable Development Goals. ASU ranked fifth in the world out of more than 700 institutions, placing first among American universities.

ASU also achieved carbon neutrality — an ambitious goal accomplished six years early. ASU also won the AASHE STARS Platinum rating for sustainability, the highest

possible designation that only five of 300 eligible institutions have earned.

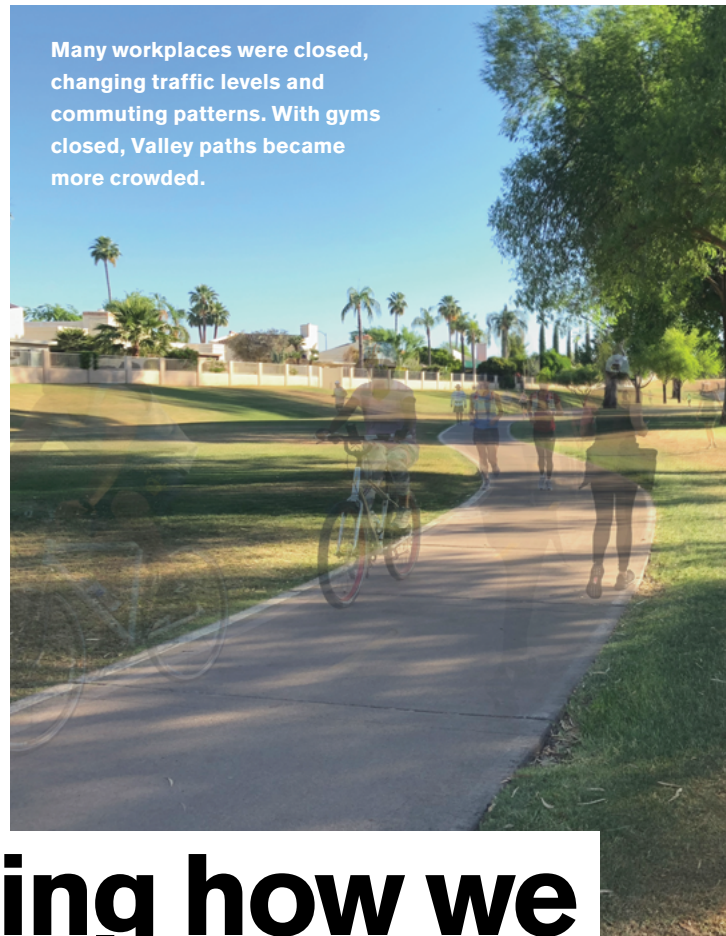
### Possibilities as we restart

Mick Dalrymple, director of University Sustainability Practices, and Alana Levine, who directs the university's Zero Waste and Grounds Services, pointed out several positives since the pandemic. Among them are increased home gardening and more pet adoptions. Additionally, they see the current situation as a test bed for showing what can be done as society restarts, including making business and society more sustainable.

Read more at [this link](#).

**“When businesses want to adapt to a priority — sustainability emerging as a major one — then there’s going to be some great innovation.”**

— ALANA LEVINE, DIRECTOR, ASU ZERO WASTE AND GROUNDS SERVICES



Many workplaces were closed, changing traffic levels and commuting patterns. With gyms closed, Valley paths became more crowded.

# Rethinking how we move in the world

## Restarting society more thoughtfully, fairly and sustainably

There has been a significant drop in automobile use in the wake of the COVID-19 outbreak. According to Ram Pendyala, director of the School of Sustainable Engineering and the Built Environment at ASU, Phoenix traffic may have been reduced by 30% during stay-at-home orders.

“From a transportation perspective, it means reduced traffic and energy consumption, cleaner air and less wear and tear

on our roads — all good things for sustainability,” Pendyala says. “But the lack of traffic is not really a good thing. Traffic is a sign of economic and social vitality. Mobility is a sign that people are interacting with each other, businesses are thriving. It’s only the adverse effects of traffic that we don’t want.”

Forecasting travel demand to better manage traffic, promote sustainable transportation and support infrastructure planning is a focus of Pendyala’s work. His research related to transportation offers insights for navigating the pandemic.

Read more at [this link](#).



Learn more about integrative transportation research and education at [transportation.asu.edu](https://transportation.asu.edu)

# Bringing back live entertainment

For an industry accustomed to the phrase, “the show must go on,” closing the theaters was no easy task

The theater is a place for people of all ages and backgrounds to come together and celebrate live art. No one can tell what the future holds, but there is one thing I am sure of: The theater is no place for fear. So, we will reopen when it is safe to do so.

We are considering the measures we can take to ensure to the best of our ability the health and wellness of each person who enters — such as gloves worn by employees, stricter cleaning measures and monitoring the food and products entering the facility. We are operating with one thing in mind: fluidity. We’re rewriting the script on procedures every single day.

One way we have adapted is by presenting more virtual events. We’ve expanded online content by hosting performances, Q&As, talks and our DBR Lab with Dr. Daniel Bernard Roumain. We can’t wait until we can swing open the doors. Until then, we are working to stay safe and healthy for our communities, our loved ones and ourselves. It is imperative to prioritize health and wellness — right now and every day.

Read more at [this link](#).



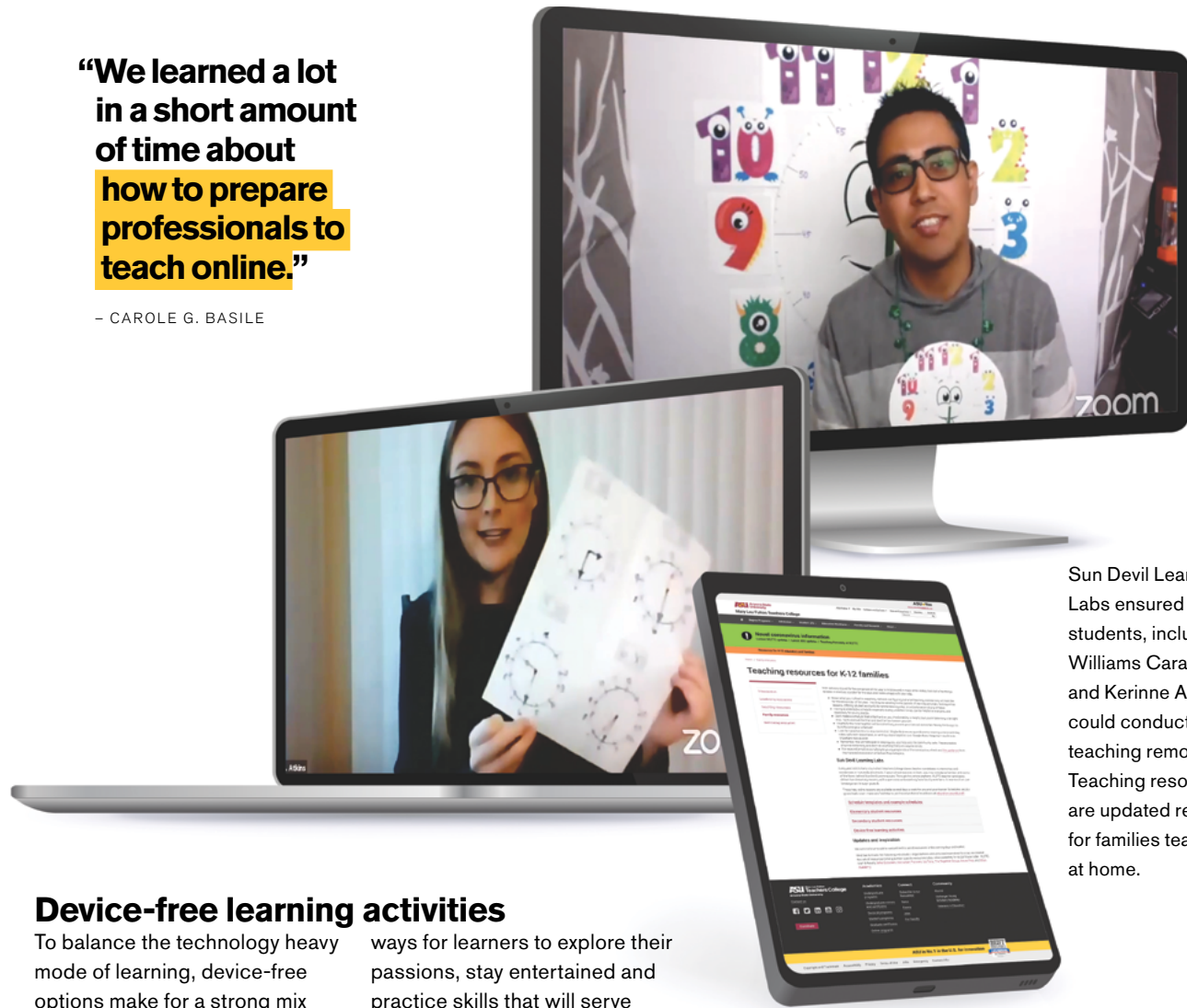
Colleen Jennings-Roggensack has been presenting the performing arts for 35 years. She is executive director of ASU Gammage and ASU vice president for Cultural Affairs. She previously served on the National Council on the Arts.



Watch live online performances at ASU Gammage Digital Connections [asugammage.com/digitalconnections](https://asugammage.com/digitalconnections)

“We learned a lot in a short amount of time about how to prepare professionals to teach online.”

– CAROLE G. BASILE



Sun Devil Learning Labs ensured that students, including Williams Caraveo and Kerinne Atkins, could conduct student teaching remotely. Teaching resources are updated regularly for families teaching at home.

### Device-free learning activities

To balance the technology heavy mode of learning, device-free options make for a strong mix of activities. To help kids get started, begin doing the activity yourself, and your children will want to join. Some of our favorite

ways for learners to explore their passions, stay entertained and practice skills that will serve them well for years to come can be found at [education.asu.edu/teaching-resources-k-12-families](https://education.asu.edu/teaching-resources-k-12-families).



Reading



Math games with cards



Treasure hunts



Gardening

# Education during and after the pandemic



**Carole G. Basile** is the dean of ASU's Mary Lou Fulton Teachers College, which is partnering with Arizona schools and other organizations to develop the Next Education Workforce. Find more of her writing on the future of education on her blog, [The Next Normal: principled provocations in education](#).

### Improving online teaching tools and methods

Times of extreme stress reveal cracks in the normal that have been there all along. As our college has responded to the disruptions caused by the coronavirus, we have lived in and peered through the cracks, and it has made us commit even more resources and strategy to educating professionals on how to teach well online, and to envision strategies for providing more educational access and opportunities to rural areas.

In the spring 2020 semester, we had 646 teacher candidates working full-time in schools. In mid-March we had five days to figure how to: 1) keep them safe; 2) provide them with meaningful clinical experiences that would allow them to graduate on time; and 3) create something that would be valuable to our school and district partners and to pre-K–12 learners.

The exercise has opened our thinking to new ways of working with school partners to integrate tech-enabled learning into Next Education Workforce models, and to new ways of thinking about how to prepare educators to succeed in that environment.

We learned a lot in a short amount of time about how to prepare professionals to teach online, and we will continue to make this a robust part of our education for professionals, both for our own ASU teacher

candidates and for in-service educators working in schools.

What we're learning about remote teaching could be especially valuable to underserved rural communities. Here's a potential use case: In Arizona, we have many rural communities that struggle to find enough qualified teachers, especially science teachers. In these communities, it will likely always be difficult in the same way that finding doctors is difficult.

Just as telemedicine is a reasonable way to address some rural health challenges, bringing expertise into those schools via a remote presence is a viable solution to some rural education challenges. A biology expert appearing remotely could, with the help of educators on site, deliver instruction to provide deeper learning for students.

The work of implementing such ideas has been slow going. One reason is that we have tackled the issue as a “learning technology” problem rather than as a workforce problem. Today, too often we ask each educator to be all things to all people at all times. The real challenge is how to design and deploy teams of adults with distributed expertise to best serve learners.

We've always known there would be a significant tech-enabled dimension to the Next Education Workforce. The crack in the normal offers us all a glimpse into the possible. ■

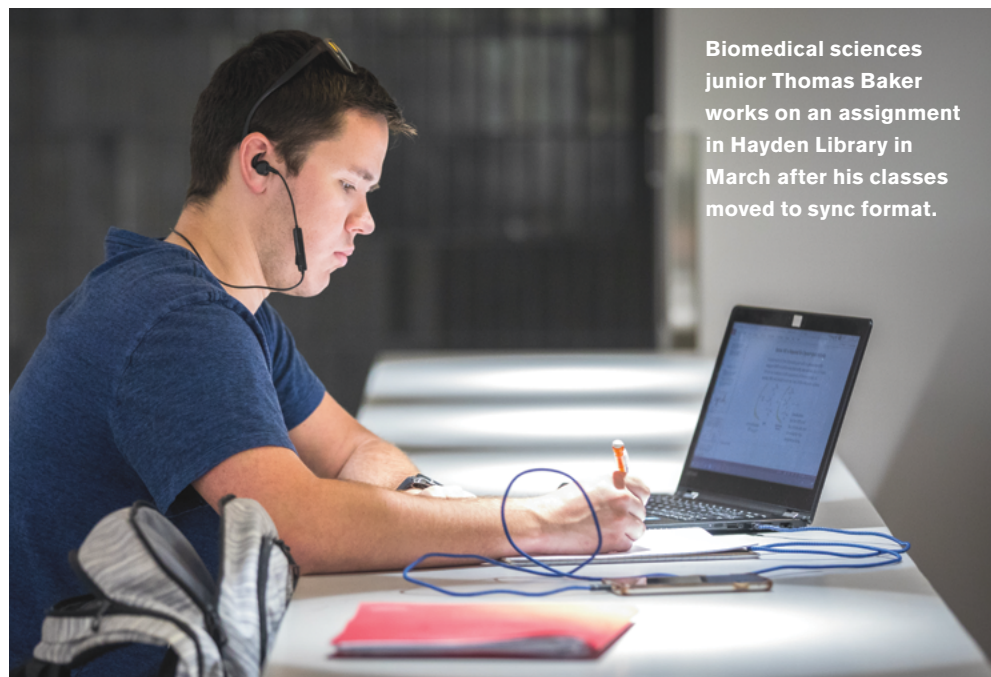
**Resources for teachers and parents to support learning are at [education.asu.edu/community](https://education.asu.edu/community)**

# Instant innovation

ASU students, faculty and staff have risen to the unique challenges of the coronavirus pandemic.

“The amount of creative new events we can join with Zoom have honestly impressed me so much. I love this school. Remote learning has nothing on weakening our community.”

— AUTRIYA MANESHNI, STUDENT, BARRETT, THE HONORS COLLEGE AND WALTER CRONKITE SCHOOL OF JOURNALISM AND MASS COMMUNICATION



Biomedical sciences junior Thomas Baker works on an assignment in Hayden Library in March after his classes moved to sync format.

## Events, student services and learning continue — virtually

Although classes moved to distance learning in the wake of the COVID-19 pandemic, students had access to many campus facilities while maintaining safe physical distancing. Not only did classes move online, but so did many valuable resources. Here are just a few:

- **ASU Student Services** Counseling, free yoga and mindfulness sessions, mentoring, degree advising, financial aid, tutoring and more.
- **Devils 4 Devils Support Circles** A series of virtual, peer-led Zoom sessions available multiple times per day, Monday through Saturday, so students can continue making meaningful connections.
- **Concerts** The School of Music student recitals/performances are being streamed and posted to YouTube, where a wide virtual audience can appreciate them. Watch [music.asu.edu/events/streamed-concerts](https://music.asu.edu/events/streamed-concerts).
- **Elementary-school coders program** “Girls Who Code” by the University Technology Office, resources online at [girlswhocode.com](https://girlswhocode.com).
- **Career and Professional Development Services** made the successful transition to remote support and mentoring at [career.asu.edu](https://career.asu.edu).
- **Cronkite News** is still reporting — from a distance, online at [cronkitenews.azpbs.org](https://cronkitenews.azpbs.org).
- **Fulton Engineering FURI/MORE Symposium** went virtual with nearly 180 graduate and undergraduate students presenting their semester research projects and meeting with industry representatives for feedback and networking. See highlights of their work at [furi.engineering.asu.edu](https://furi.engineering.asu.edu).

Keep up with the headlines at ASU by subscribing to the ASU Now e-newsletter at [asunow.asu.edu/subscribe](https://asunow.asu.edu/subscribe).

## ASU Sync reimagines ways to learn

When COVID-19 hit, ASU pivoted and introduced a new learning modality — ASU Sync. With the use of state-of-the-art tools to enhance real-time collaboration, more than 14,000 classes were held in the spring and more than 5,000 courses offered in the summer. These highly interactive, live class sessions between learners and teachers deliver synchronous learning through a variety of digital and video tools. ASU was able to quickly make this transition because of its rich history in providing digitally enhanced learning experiences for students studying online or in-person. In addition to ASU’s top ranked ASU Online program, which is ranked sixth in the nation by U.S. News & World Report, the ASU Sync format will be added to the fall 2020 offerings.

<b>ON-CAMPUS</b> (in-person, full immersion, digitally enhanced)	<b>ASU SYNC</b> (live, digital immersion)	<b>ASU ONLINE</b> (Asynchronous, technology enhanced)
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### Course design and curriculum

Strong instructor presence guides the academic experience.	✓	✓	✓
Follows established curricular requirements to ensure quality of instruction.	✓	✓	✓

### Student engagement

Live instruction engages students through visual cues, real-time questions and answers with live chat and ability to raise hands.	✓	✓	✗
Larger class sizes may be broken down into groups and breakout rooms for more personalized attention and to build a sense of community.	✓	✓	✓

Polls are utilized to measure student comprehension so instructors can quickly provide clarification and feedback.	✓	✓	✓
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Tutoring and faculty office hours supplement experience.	✓	✓	✓
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### Out-of-classroom experiences

Ability to participate in extracurricular activities and student groups.	✓	✓	✓
Orientation and advising support.	✓	✓	✓

Access to robust student support services (libraries, disability resources, military support services, etc.)	✓	✓	✓
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“Peggy has been awesome. Even with everything moving online, she is emailing us to set up times to go over our pitches and making herself available.”

— ASHLY BROWN, WHO STUDIES BUSINESS ENTREPRENEURSHIP, ON HER WORK WITH PROFESSIONAL-TA PEGGY THOMPSON, WHO HAS BEEN A SERIAL ENTREPRENEUR AND WILL BE A MIRABELLA RESIDENT

## Graduation goes virtual

For the first time ever, ASU hosted a virtual graduation featuring video presentation of degrees including highlights in which each graduate’s name was read. New filters on Snapchat, Facebook and Instagram of grad caps, campus backgrounds and the 2020 sculpture were used by grads to celebrate their success.



“All of the prep work paid off, because I completed my [honors thesis] defense without any issues.”

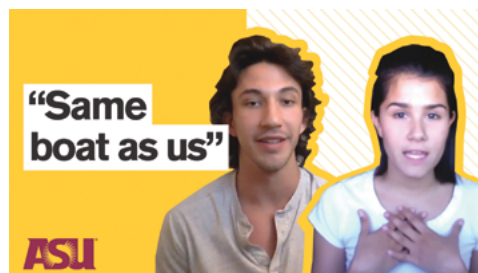
— KATHLEEN CASEY, A SENIOR IN BARRETT, THE HONORS COLLEGE STUDYING KINESIOLOGY, WORKED WITH FACULTY AND TESTED THE TECHNOLOGY FOR A REMOTE PRESENTATION

Read more Remote Resilience Stories at [uto.asu.edu/remoteresilience](https://uto.asu.edu/remoteresilience)

## Capturing campus in the cloud

For four years, “You Asked” host Ben Ashby has been creating entertaining and informative videos for ASU students, showing them around campus, and demystifying the ways to get things done and thrive at ASU.

In the weeks leading up to his May graduation with a BA in film from the Herberger Institute for Design and the Arts, Ashby explored how ASU’s 75,000-plus on-campus students transitioned to digital learning platforms and how professors quickly adapted their lesson plans.



## Connecting with professors

In one special Zoom edition, students talk about how ASU staff and faculty are committed to keep learning moving forward — with an innovative and entrepreneurial spirit.

Watch the video at [youtube.com/ASU](https://youtube.com/ASU).



## All about resilience

In another special Zoom edition, Ashby explores other aspects of how the global pandemic has changed life for students at ASU, and shares inspiring stories of resilience.

Watch the video at [youtube.com/ASU](https://youtube.com/ASU).



Check out the “You Asked” series at [yourfuture.asu.edu/youasked](https://yourfuture.asu.edu/youasked)

# ‘We will adapt and overcome’

New grads made the transition to online learning and graduated into a changed world

## Starting traditions for my family

By KALYNN YAZZIE

Native Americans have many traditional values and teachings. We celebrate ceremonies for coming of age, health, blessings and more. Our languages, clothing and religious beliefs are types of traditions.

These are passed down generation to generation. However, for some families, like my own, that wasn’t the case. I am a 23-year-old Diné asdzáán (Navajo woman) from a part of Phoenix that has a low Navajo population. My grandparents passed away at a young age, so my mother wasn’t taught Navajo traditions. As a result, I came to ASU with little sense of cultural identity, and I was reminded of that on campus, which has a strong Native American community.

The most influential part of my cultural identity journey was interning at ASU’s Turning Points Magazine. I feel like I’ve met my own aunts, uncles and older sisters, who have helped me gain knowledge about Navajo traditions. At the end of the day, I get to go



home sharing with my family all the wisdom and knowledge I obtained from everyone at ASU.

This is why graduation is important to me: to display to my family that my hard work has paid off. In preparation, I learned the Navajo tradition of making our own handmade celebratory clothing and jewelry, including a concho belt for graduation. I will be wearing it when I graduate this fall. ■

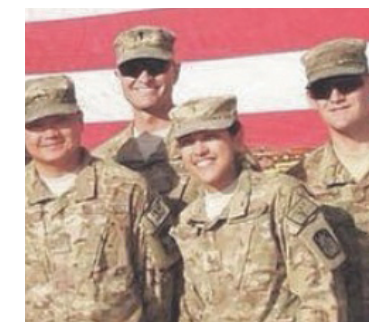
KaLynn Yazzie, pictured with sister Vanessa Cresci, expanded her understanding of Native American culture at ASU.

## Relishing the moment

Marisa Von Holten, a military veteran who graduated in May with a BS in public service and public policy, chose ASU because of the university’s standout role in helping to educate veterans and active duty service members. The veteran community on campus has made all the difference for her in her education journey. She spoke at the virtual Veterans Honor Stole Ceremony.

“Our journey to this special moment has long been anything but traditional. I’m proud to share in this accomplishment with you. We will adapt and overcome. Best of luck, forks up and aim high!”

Read more at [this link](#).



Von Holten, who served in the U.S. Air Force for six years, told fellow grads, “We will adapt and overcome.”

## Learning continues

ASU students, faculty and staff navigate a changing landscape

### In-person health and telehealth services available to all students

All on-campus students have access to ASU Health Services, a fully accredited health care provider operating in five locations across ASU campuses. In addition, ASU Counseling Services offers confidential, personal counseling and crisis services for students experiencing emotional concerns, problems in adjusting and other factors that affect their ability to achieve their academic and personal goals.

Through [ASU telehealth services](#), students can receive medical consultations via phone, from anywhere.

**COVID-19 testing will be available on all campuses for any student or employee who needs it.**



**Face coverings, social distancing, training, hospital-grade and repeated cleaning, health kits and other health precautions are in place for fall semester.**

# Live well, be well

### Training, guidelines and kits to support community health

ASU looks forward to the fall 2020 semester and has been hard at work making plans to create a safe and welcoming environment in which students can live and learn. Campus life will look different in many ways, and we will all need to make adjustments. With the cooperation and care of every member of the Sun Devil community, we're confident we can all have a successful fall semester.

In these pages, you will find the latest information about how we intend to do that and where to go for updates if circumstances change between now and when classes begin.

These plans reflect current public health guidance and are subject to change before and after classes begin. ASU will continue to proactively communicate any changes that may affect campus life.

One thing is certain, we will be ready for whatever may come. It's what Sun Devils do — we face challenges with creativity and grit, leaning on adaptability and innovation. Our commitment to building student success is what unites the ASU community.

#### Preventive measures

All ASU students and employees will be prescreened for information related to prior COVID-19 testing and travel. ASU will follow CDC guidance pertaining to isolation requirements for individuals traveling domestically or internationally.

**COVID-19 testing available for all students and employees.** Testing will be available on all campuses

Employees and students will be required to wear a face cover while in ASU buildings. Face coverings will also be required in outdoor community spaces where social distancing isn't possible.



All on-campus ASU students and staff will be required to participate in a "Community of Care" training program. ASU is also instituting hospital-grade repeated cleanings of buildings.

for any student and employee who needs it. In particular, we encourage anyone who is experiencing COVID-19 symptoms or may have been exposed to someone with COVID-19 to request a test.

The university houses a CLIA-certified testing lab at the Biodesign Institute and has been implementing testing for front-line health care workers, first responders and critical infrastructure employees since April.

ASU will provide a saliva-based COVID-19 test and will prioritize testing for any student or employee who is exhibiting symptoms or may have been exposed to someone with COVID-19. Turnaround time for test results is 24 to 48 hours. ASU has staff available to support contact tracing as needed.

#### **Proactive health monitoring**

Students and employees should monitor their temperature each day they're on campus. If their temperature is 100.4 degrees or higher, they should stay home and seek health advice.

#### **Protocol for individuals who exhibit COVID-19 symptoms or test positive**

ASU will follow Maricopa County Public Health Department protocols related to isolation and treatment of individuals who exhibit COVID-19 symptoms or test positive. These guidelines are subject to change. Visit [maricopa.gov](http://maricopa.gov) for current protocols.

**For students who live on campus,** isolation space will be available along with a complete suite of health

care and food delivery services. While in isolation, students will be able to continue their classes via ASU Sync.

#### **“Community of Care” training and kits**

All on-campus ASU students and employees will be required to participate in a “Community of Care” training program designed to inform, educate and encourage healthy living and learning on campus and as a member of the ASU community.

#### **Requiring face coverings at ASU locations**

Students and employees will be required to wear a face cover while in ASU buildings. Face coverings will also be required in outdoor community spaces where social distancing isn't possible.

#### **Optimizing environments for social distancing**

Sneeze guards and Plexiglas barrier installations will be used in high-frequency visitor areas, touchless technology will be used where possible, and social distancing will be observed.

#### **Communitywide communications campaign**

This will remind students, employees and campus visitors of public health protocols to help prevent the spread of COVID-19.

#### **Introducing hospital-grade and repeated cleaning**

All buildings — including residence halls and classrooms — will receive a deep cleaning with hospital-grade products followed by a fogging system cleanse prior to occupancy this fall. All buildings will receive a deep cleaning once per day, and high-touch surfaces will be cleaned twice daily.

#### **Welcoming visitors to ASU locations**

Visitors to any ASU location are expected to adhere to established, posted guidelines. This includes observing social distancing measures, wearing face coverings and answering health screening questions.

### **Campus life**

ASU takes a holistic approach to the health and wellness of our students. We believe that student success involves much more than the grade earned in a class — it encompasses the physical, emotional, mental and spiritual well-being of all of our students. [ASU's Live Well Community](#) is dedicated to supporting students in their health and well-being during their university experience. COVID-19 is a unique challenge that ASU is prepared to help students manage.

#### **Enabling a full housing experience while introducing new safety precautions**

ASU has consulted with public health officials and national associations — and will continue to do so — on recommended housing configurations and protocols. The university will accommodate shared housing spaces and single-room requests.

**ASU is dedicated to supporting students' health and well-being during their university experience.**



Visitors will not be permitted in residence halls; accommodations will be made during move-in periods.

ASU will maintain vacant rooms in residence halls for isolation spaces, if needed. Common areas and outdoor community spaces may be subject to restrictions depending upon current local health conditions; face coverings will be required; high-touch points will be cleaned and disinfected frequently; and sanitation stations will be available.

**Dining on campus** ASU will maintain takeout dining with prepackaged, disposable utensils for the fall semester. Touchless payments, physical distancing in lines, sneeze guards/Plexiglas barriers and extended hours will

be implemented.

ASU will use Environmental Protection Agency-approved, hospital-grade products for cleaning and will increase the frequency of cleaning of high-touch areas. Sanitizing stations will be installed throughout dining areas. All food service employees will receive a health symptom screening prior to every shift.

#### **Enhanced outdoor spaces**

Health experts say that being outside lowers the risk of coronavirus transmission, and students are encouraged to take advantage of ASU's outdoor spaces. We understand the importance of connection as part of the college experience. Additional outdoor spaces will be designated for students to dine

**ASU is enabling a full housing experience while introducing new safety precautions including frequent cleaning.**

**For the latest updates**  
[asu.edu/about/fall-2020](http://asu.edu/about/fall-2020)



Sun Devil Fitness facilities will be open in accordance with CDC guidelines including capacity requirements, social distancing protocols and more.

and socialize, while still adhering to social distancing guidelines.

**In-person and virtual fitness programs are available**

[Sun Devil Fitness facilities and wellness programs](#) will be open in accordance with CDC guidelines including capacity requirements, social distancing protocols, face coverings and cleaning requirements. Some fitness programs will also be available via ASU Sync.

Start dates and availability of intramural sports and sports clubs will be determined on a case-by-case basis based on the current public health guidelines.

**Robust student services offered**

ASU transferred many services for students to a digital environment to ensure continuity of all aspects of the university experience during COVID-19. These services will continue to be available virtually and in-person as health guidance permits. Examples include:

- Academic advising, coaching and tutoring.

- [ASU's Career and Professional Development Services](#) offers virtual drop-in career and internship advising.

- ASU Counseling Services created a peer-led Zoom support group, [Devils 4 Devils Support Circles](#), for students to support and connect with each other while taking classes remotely and practicing social distancing.

- Many [student events and programs](#) have also transitioned to a virtual format, with a wide variety of activities and events still available.

- All four campus locations of the [ASU Library](#) will be open for the fall semester, with a vast number of digital service offerings. Those include One Search, which provides access to online-only resources at ASU; library guides for help with research and citations; and Ask A Librarian, online chat library assistance. [Learn more about library resources that are accessible anywhere.](#)

**Mayo Clinic and ASU COVID-19 Initiative**

ASU and Mayo Clinic are launching the Mayo Clinic and ASU COVID-19 Initiative to provide timely health care information to students and employees on demand through the Mayo Clinic Health Information Library; to provide additional COVID-19 testing services to students and employees; and to collaborate on COVID-19 research projects and clinical trials. [Learn more at \*\*asu.edu/about/fall-2020#mayo.\*\*](#)

**Fall break**

To lessen travel risk, ASU is canceling fall break, which originally covered Oct. 12 and 13. Information on how this will affect Monday and Tuesday classes will be forthcoming from individual professors. [See the calendar for fall semester here.](#)

**Campus shuttle services continue social distancing**

Shuttles will operate on a normal schedule with social distancing guidelines and increased cleaning. For the well-being of fellow riders, passengers are asked not to board if they feel ill. All passengers are required to wear a face covering and should maintain physical distancing of at least 6 feet. Visit [cfo.asu.edu/shuttles](#) and follow [@asu2asuShuttles](#) for route updates.

**Class flexibility for students**

**Technology enhanced learning to keep on track**

Consistent with our efforts to always meet learners where they are, ASU will offer courses in a variety of learning environments to accommodate students' needs depending on location or circumstance as a result of COVID-19.

Our goal is to provide a quality learning environment that adheres to public health and safety guidelines from the U.S. Centers for Disease Control and Prevention. Many classes will include a blend of in-person and ASU Sync experiences.

Some labs, clinical experiences and fine arts courses that do not lend themselves to remote instruction will only be available through on-campus, in-person instruction.

The university will implement increased cleaning protocols including daily cleaning of classrooms with two additional cleanings of high-touch surfaces, providing cleaning and sanitizing supplies in all classrooms for students, and reducing attendance in classrooms by half on alternating days. Those not attending in person on assigned days will participate in class through ASU Sync.

Out-of-state and international students who wish to attend classes on campus but may not be able to arrive in time for the start of the semester will be given the opportunity to learn through ASU Sync for the first half of the semester, and if necessary, the full semester. Faculty will hold special office hours that accommodate different time zones.



Courses may include ASU Sync and iCourses options, which can be accessed from home.

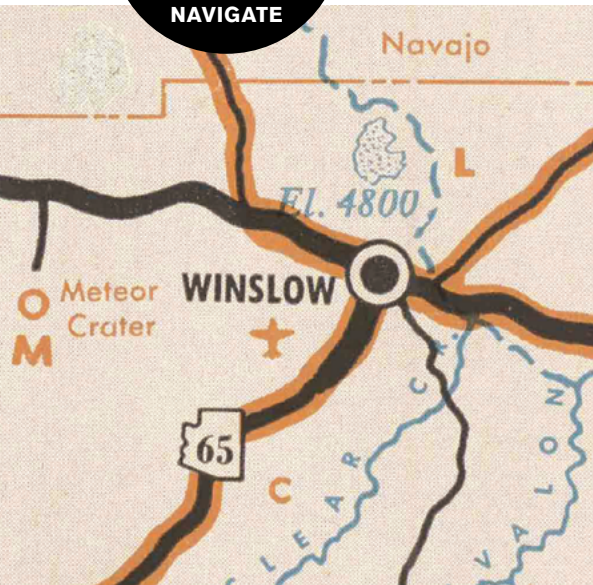
**Offering three options for on-campus classes**

For the majority of classes, immersion (on-campus) students will have access to the following three learning environments:

- **ASU immersion** On-campus, in-person, technology enhanced learning environment.
- **ASU Sync** Synchronous, technology enhanced and fully interactive remote learning using live lectures via Zoom. This approach can be used simultaneously with in-person instruction to accommodate students in different circumstances and enable social distancing in classrooms or as stand-alone technology. It offers the benefits of face-to-face instruction in an interactive group learning environment. [Learn more at \*\*provost.asu.edu/sync.\*\*](#)
- **iCourses** Courses delivered entirely online with lectures available on demand.

**For the latest updates**  
[asu.edu/about/fall-2020](#)





# A return TO HER people

A Sun Devil braves the COVID-19 front lines in Navajo territory

Story by JEREMY HAWKES

From top left: map of the Winslow area; Michelle Tom during her ASU Athletics days; Monument Valley. Middle row: Michelle Tom pre- and post-pandemic. Bottom row: Navajo Nation now has the highest COVID-19 cases per capita in the U.S.; photo of Tom from Turning Points Magazine; front-line doctors.

On March 18 of last year, Diné Michelle Tom, '99 BS in microbiology, realized her goal of returning to her homeland as a licensed physician for her Navajo people. On her one-year anniversary of becoming a doctor, she found herself on the front lines against a virus that has ravaged the world and especially the Navajo Nation.

Although Tom knew from a young age that she wanted to become a physician to help her people, it felt more fantasy than achievable. Fewer than 15% of people 25 or older living on the Navajo Nation have earned a bachelor's degree or higher, according to U.S. Census data, compared to nearly 33% of the

general population.

Still, she persisted in her goal, because she has long seen the challenges that indigenous people face when it comes to health and well-being.

"Being a product of the Indian Health Service, I grew up in that. I saw the disparities with my people," she says. "I saw how few doctors and nurses there were and especially how few there were that looked like me or even spoke Navajo. So I wanted to be a provider. That was always my goal."

### Basketball as a path to education

"Rez Ball" is a way of life for the Navajo people, and Tom was a

standout at Winslow High School, where she played under coach Don Petranovich — the winningest girls basketball coach in Arizona history. Her high school efforts earned her a place at Phoenix College, where she competed for two seasons and earned All-America honors before ASU came knocking, and Coach Charli Turner Thorne recruited Tom.

“She helped build this into the program that it is now,” Turner Thorne says. “We recruited character and players that loved that game, and that was Chelly Tom.”

Tom led the Pac-10 in three-point shooting percentage at a 42.0 clip as a senior. She accumulated 300 career points in her two seasons, with 48 three-pointers. She provided one of the early highlights of Turner Thorne’s career, drilling a pair of threes “with a defender in her shorts” at the end of regulation against seventh-ranked Washington to send the game into overtime before nailing a buzzer-beater.

But for Tom, her time at ASU was meant for something greater. She earned a bachelor’s degree in microbiology and pre-medicine and accomplished something few of her people had been able to do.

“She had to work so hard in those classes,” Turner Thorne says. “And she did.”

But Tom didn’t have the grades or high enough entrance exam scores for admittance to medical school.

Despite the adversity, Tom pushed forward.

“A big thing with Charli was always knowing ‘What’s your role? What’s your strength?’” she explains.

It was that “court vision” that

**“Rural medicine is hard enough. We’ve always been short-staffed in general. These tools that I got from ASU have come through more for me through medical school residency and especially now.”**

— MICHELLE TOM, PHYSICIAN ON THE NAVAJO NATION

helped Tom keep going. She earned her master’s degree in public health from the University of Arizona, and found a well-paying job. She persisted in trying to get into medical school, but her entrance exam scores and her GPA remained low, so she took an extreme step: She left her job, left her apartment, worked part-time and slept on friends’ couches so she could focus on studying for her entrance exam.

It paid off. She was able to bring her grades and scores up and finally received a letter of acceptance into medical school at Nova Southeastern University in Fort Lauderdale.

“I’ve never met anybody so determined to do what they said they were going to do when it was so hard to do it,” Turner Thorne says. “She is the greatest success story of my life.”

**Greatest challenge of Tom’s life**  
Tom earned her medical degree in osteopathic medicine in 2015 and

completed her residency in family medicine.

Then, she quickly returned to her people to assume her role at the Winslow Indian Health Care Center and the Little Colorado Medical Center, both located in Winslow, Arizona.

She barely had a moment to breathe after a decade and a half of higher learning before facing an extraordinary challenge. The Navajo Nation covers 27,000 square miles of territory across Arizona, New Mexico and Utah, and has a population of around 175,000, according to the nation. Sitting on the southern border of the reservation, the outpatient Winslow Indian Health Care Center oversees a user population of close to 17,000, while the Little Colorado Medical Center cares for approximately 30,000 people in north-central Arizona, including emergency services. The facilities are strained at the best of times for personnel, funds and resources. But COVID-19 has further revealed the glaring lack of resources the tribe faces.

“Rural medicine is hard enough. We’ve always been short-staffed in general,” Tom says. “These tools that I got from ASU have come through more for me through medical school residency and especially now.”

But even with that preparation and years of practice, Tom and her fellow health care workers are stretched thin in facilities that were simply not built to handle this kind of outbreak, especially within a culture that is inherently familial and communal. It is not uncommon for several generations to live under one roof. Plus, the population is plagued



by asthma, heart disease, diabetes and obesity — underlying health conditions known to exacerbate the effects of COVID-19.

In addition, there are structural inadequacies: As many as 40% of households lack running water and can’t follow recommended hygiene, like washing hands for 20 seconds.

“It spreads so rapidly because of our large households and large community functions,” Tom explains.

There are only 12 health care centers and only four inpatient hospitals located on tribal land, which is roughly the size of West Virginia. The federal government spends \$2,834 per person on health care in Indian Country, while it spends \$9,404 per person on veteran’s health and \$12,744 per person on Medicare, according to recent data.

The community does not have adequate health care resources. Tom’s hospital has two ventilators and 22 beds, none of them ICU beds. There is only one emergency room doctor during the day and two ambulances. There are only two negative-pressure rooms, used to isolate those at high risk away from the general population. Unfortunately, Tom had nearly 10 COVID-19 patients in a single week, forcing patients to share regular rooms.

By May 13, there were more than 3,245 positive COVID-19 cases and 103 deaths on the Navajo Nation. Twenty percent of the deaths in Arizona have been Native Americans, even though they make up just 5% of the state’s population.

“People lack access to health care. The death rate is high

because the access is slow,” Tom says.

**Resilience and hope**

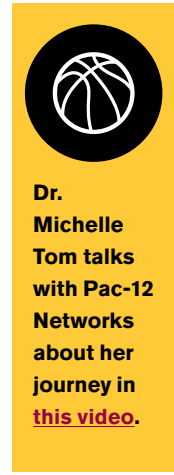
“The community has really tried to take hold of this,” Tom says. “I’ve had everyone from friends and family to professional colleagues and even patients reach out to me to ask me what I need, what I can use.”

It is that sense of family and community that strikes a chord with Tom, who sees all the positive and wonderful traits of her people in the tribe’s darkest hour.

“It’s tremendous the amount of hope and giving and sacrifice I have seen so far,” she says with tears welling up in her eyes and her hand across her heart. “It just gives me the strength to keep doing what I’m doing.” ■

Staff members at Little Colorado have two ventilators, 22 beds and five obstetrics beds.

**Donate to Dr. Tom’s medical relief efforts at [unitednatives.org](https://unitednatives.org) or contact her at [mtom.do.mph@gmail.com](mailto:mtom.do.mph@gmail.com).**





## The Morning News

Seasons will not be still,  
Filled with the migrations of birds

Making their black script on the open sky,  
Those hasty notes of centuries-old goodbye.

The clouds and the heavens make a memo book,  
A diary of it all, if only for a day.

The birds write much, but then rewrite all the time,  
News continuous, these small pencil tips in flight.

They are not alone in the day's story.  
Jets, too, make their writing on the blue paper —

Jets, and at night, satellites and space stations.  
Like it or not, we are all subscribers to the world's newspaper

Written big in the frame of the window in front of us.  
Today, we wave to neighborhood riders on horses.

We hear the woodpecker at work on the chimney.  
There is news everywhere.

All this small courage,  
So that we might turn the page.



**Alberto Rios** is Arizona's first poet laureate and has taught at ASU since 1982. His recent book, "Not Go Away Is My Name," was published in May by Copper Canyon Press.



Hear Rios read from his new book on [Youtube](#).



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## Go after your objectives now, cont.

Reflecting back on what we just did this past weekend, I realized that we were finding ways to exercise our passions while sticking to the social distancing guidelines.

My wife is a triathlete, and she trains hard for the event. She has had several events postponed or canceled but can ride her bike because that’s definitely a socially isolated activity. She’s able to run. The one thing that she doesn’t have an outlet for is swimming because the pools are closed, so we decided to go to one of Arizona’s lakes. She can be socially isolated in Canyon Lake and swim. I can take that opportunity to either shoot video or pictures and get my creative juices going. So we did that at Canyon Lake, and it was great. We felt better about doing that and self-isolating in nature. It is one of my favorite places in Arizona. It’s the first mountain range I fell in love with.

### Replacing canceled events

Our outing was on a Saturday, and on the following Sunday, we were supposed to have a big party for families. My 5-year-old was disappointed because all of her friends were supposed to be here. They were all going to play in the backyard.

Instead of being down

about it, what we did was turn the opportunity into a project that we’ve been talking about for a few days. We started a neighborhood book club. All the neighbors who were interested in participating, you can take a box, fill it with kids books, adult books, whatever kinds of books that you might want.

People can give them away or put their address in a book, so they get returned. So my daughter and I worked on the project of finding and collecting books. We gathered some of my books and some of her books. We put them in a box and put them out there.

It has been great to watch her take a disappointment and then turn that into a positive. Those are the things that can help your kids think through what’s happening.

Hopefully, there are two messages that you’ve pulled out of this column. First, you can’t just sit there and wait. Use this opportunity to focus on things that you’ve been wanting to work on for a long time. And the second thing is you still need to be you and find ways to do the things that you’re passionate about. My wife is going to drive out to the state park and swim as long as they are open. And, as I posted in the video above, my 5-year-old is going to find ways to engage in activities she’s curious about.

The best thing that we can do is not let this situation drastically impact us. Find ways to stay positive through all this. ■



## Silver linings in sustainability, cont.

### Bluer skies

“The air is cleaner,” Dalrymple says.

Air travel is about half of the university’s greenhouse gas emissions. A lot of people who fly for one-off meetings or conferences are now doing them by videoconferencing.

“How can we do things better using technology and not travel so much?” Dalrymple says. “It’s not to say that in-person ... is not important, but it’s at least allowed us to think about what needs to be done in person and what can be done using teleconferencing. ... This (situation) is helping us figure out what jobs can be partially or mostly done through telecommuting. And, also, how do you do it successfully?”

Perhaps we don’t all need to be in the same square mile to get work done.

### A more neighborly Valley

The urban sprawl of Phoenix, like Los Angeles, creates a certain lack of social cohesion. Everyone drives everywhere to shop, eat, exercise and play. Now neighborhoods look more like they did 30 years ago, with kids playing ball in the streets and whole families out on bicycles.

Dalrymple has met neighbors he didn’t know before the pandemic. He has done a neighborhood

happy hour — at a distance, of course. Working at home and exercising in our neighborhoods has helped build community relations at the neighborhood level, he says.

“From a sustainability and resilience standpoint, this is one thing that several different studies have talked about,” Dalrymple says. “I see neighbors and families and dogs out walking all the time. I ran into a neighbor the other day who has lived in the neighborhood for 32 years. They said they just met someone who has lived here for 27 years. ... They just met because of this virus. I think for the Valley specifically it’s helping us get out of our cars and helping us be less zooming from here to there. It’s actually helping people to be more connected at a neighborhood level. I think that’s a great thing.”

### People getting outside

During the shutdown, people were not going to bars and or shopping malls, Dalrymple says. “They’re finding some way to get exercise and they’re not going to the gym.”

Trails are open, but there are traffic and parking controls in place, and some popular places were closed to prevent overcrowding. Officials want you hiking, not crowding.

“I think people getting that reconnection with nature is pretty good,” Dalrymple says. In a way, the current situation is taking people out of their comfort zones, which can provide a different perspective on life.

“Something that’s going to come out of this is hopefully some new priorities and a lot of

innovative changes,” he says, pointing out that Airbnb was created during a crisis when two guys in San Francisco couldn’t pay their rent.

“This is an opportunity to create a new trajectory toward a green economy,” Dalrymple says.

### Opportunity amidst crisis

Levine sees quite a bit of opportunity in business models right now.

“We’re seeing that businesses are capable of making sweeping change in a really short amount of time,” she says. “It’s possible to make those sweeping changes when you adapt to priorities. We’ve always struggled with businesses and their business models not wanting to adapt to sustainability.”

She sees the current situation as a testbed for showing what can be done.

“When businesses want to innovate and adapt to a priority — sustainability emerging as a major one — then there’s going to be some really great innovation around material science and some of the business models,” Levine says.

### More furry friends

As people have started hunkering down at home, they’ve adopted pets.

“One shelter at least is completely empty of dogs,” Dalrymple says. “They’ve all been adopted out.”

Levine has seen furry new friends all over social media.

“I can’t stop looking it up,” she says. “I found my best friend!” “I found my co-worker!” — Things like that. It’s awesome.”

The county animal shelter has put 200 dogs in foster homes. In New York and Los Angeles, the American Society for the Prevention of Cruelty to Animals says applications to foster dogs and cats is up 200%. Fostering and adoptions are up 700% over last year, according to software used by 1,200 animal shelters nationwide.

### Greener thumbs

People are taking up or relearning gardening and how to grow food, Dalrymple says. Some neighborhoods have never looked as good as they do now.

“That’s pretty cool,” he says. “Some of the gardening shops are doing online ordering where you pick it up like takeout. I’ve talked to several people who have started gardening and planting food.”

### What will stick?

“I think people are valuing the things that they have,” Levine says. “I think those kinds of very deep values are not going to go away as quickly as some of the convenience things.”

Spending local and supporting local businesses, reusing things at home and cooking at home will all have legs, Levine predicts.

“The amount of consumption that we have normally and how much some of the stuff we were used to throwing away, like how much food we waste,” she says. “Now that’s really right in front of our faces.”

We’re used to having new stuff and buying things constantly. Now people are seeing the worth of what they have, she says. ■



## Building smarter supply chains, cont.

### Disrupting demand

Manufacturers and distributors have had to contend with sudden fluctuations in supply and demand. Supply chains are typically designed to meet either commercial or consumer demands — via different means — and they tend to trend in the same direction. In the pandemic, they’ve gone in opposite directions. As demands increased in the consumer market, demand dried up in the commercial market nearly overnight in mid-March as schools, restaurants, hotels and big facilities shut down.

“Supply chains weren’t prepared to immediately shift gears, which left excess in commercial markets with shortages in the consumer area. It’s why you saw a lot of food being wasted and farmers being forced to dump milk,” Gopalakrishnan says.

Yet there have been positive signs. Arizona’s prominence as a distribution hub continues to grow as consumers increase their online shopping. In addition, increased consumption of fruit to enhance immune systems has driven the demand for orange juice and benefited the state’s citrus industry. Retail sales of orange juice rose nearly 40%

in March 2020, according to Nielsen data.

“It’s having a big impact on Arizona’s citrus industry and futures,” Gopalakrishnan says.

### Complex global markets

The complexity of the global supply chain, and China’s crucial role in it, has amplified the pandemic’s effects in some markets like electronics, food products and pharmaceuticals. While China contributed only 3% to global GDP in 2003, it now contributes up to 20%, Gopalakrishnan says.

One supply chain that constricted globally is personal protective equipment. Although production of N95 respirator masks typically averages 40 million per month in the United States, demand skyrocketed to 300 million per month during the pandemic, Gopalakrishnan says. The worldwide shortage led many countries to hang on to their own products, and as of late April, at least 80 counties limited the export of PPE, according to the World Trade Organization.

“That kind of nationalistic behavior further restricted the availability of essential gear,” Gopalakrishnan says.

Many companies started to fill the void by adjusting their supply chains and manufacturing operations. Honeywell Aerospace partially repurposed its Phoenix manufacturing facility in late-March to produce N95 masks to supply the Strategic

National Stockpile, a move the company said would create 500 new jobs. Local innovators, like ASU, created the ASU PPE Response Network to link health care providers with 3D printers, including all of ASU's, in order to produce PPE gear locally close to where it will be used, and to distribute it quickly.

End users and companies also have been innovating to extend the life of products through refurbishing and cleaning. For instance, ASU created a way to sanitize 30 PPE masks in 5 to 10 minutes each. Thirty percent of ventilator capacity is now coming from refurbished and previously unused machines, Gopalakrishnan says.

#### A New World

Gopalakrishnan will do further research this summer about how these companies have repurposed their supply chains, the impact it has had and what kind of structural changes we may see in the future to avoid supply chain disruptions.

Even as the world starts to reopen, Gopalakrishnan believes many countries will place a stronger focus on supply chain resiliency, something that could lead to "a battle of nationalism versus globalism."

"There is suddenly going to be a little step backwards in globalism. Some companies may want to source and [manufacture] closer to home," Gopalakrishnan says.

Watch videos on building your supply chain resilience at [news.wpcarey.asu.edu](https://news.wpcarey.asu.edu) ■



### Rethinking how we move in the world, cont.

His research into human preferences and behaviors related to transportation offers insights on the impact of social distancing during the COVID-19 outbreak in America.

"For example, this experience could prompt us to think differently about the nature of work in the future," Pendyala says. "On the one hand, we all enjoy the first weeks of telecommuting. But then workers begin to feel isolated and employers start getting concerned about productivity. We might see some increase in people working remotely on a permanent basis, but likely for only a part of each week, as opposed to the full-time telecommuting we see now."

Pendyala also points out that public transportation ridership has dropped by as much as 60% during recent weeks. Though transport agencies like Valley Metro have instituted more stringent disinfection protocols, public fear is widespread and difficult to overcome.

Even alternatives to public transportation from ride-sharing services to micro-mobility are suffering, as people grapple with uncertainty about how the new coronavirus is transmitted. ■



### Bringing back live entertainment, cont.

We have even had Arizona natives and current Broadway stars Krystina Alabado, Sam Primack and Casey Likes join us to share their wisdom, tips and tricks.

These online events allow us to share the work of local artists with community members in new ways. Artists are working over video calls and writers are thinking of pieces that would be appropriate over digital platforms. They are still enduring the creative process together, and ASU Gammage is doing just the same.

The format of shows is constantly being reimaged. I have talked to producers and creatives about ideas that they

have brewing, and I can't wait to see the final products. There will be shows inspired by this challenging time — some funny, some sad, some heartfelt — that will allow us to reflect. ASU Gammage has joined that conversation. From drive-in theatrical performances to music concerts in Sun Devil Stadium, nothing is off the table. All ideas are being considered.

We're not part of the first phase of reopening, and that is OK. There is no "if" about reopening, but a matter of "when."

We can't wait until we can swing open the doors. Until then, we are working to stay safe and healthy for ourselves, our loved ones and our community. It is imperative to prioritize health and wellness — right now and every day. I know I speak for myself and our staff when I say we look forward to seeing many familiar and new faces at ASU Gammage. ■



### Relishing the moment, cont.

"Take a moment this week to reflect on what was unique about your own personal journeys; but if you can, I hope to see you all back in December or next May for commencement and, of course, our Veterans Stole Ceremony so we can celebrate the way veterans deserve to and know how," she said.

"Continue to use the same skill and drive and motivation that helped you be successful in the military as well as college; with that, I know you'll do great on your next adventure," Von Holten said.

Von Holten also made a trip back to the Tempe campus to capture pictures at favorite spots and reflect on her time as a Sun Devil.

"It made me so happy to see other students doing the same because, whether we have taken the time to acknowledge it or not, we are living in a moment of history. Commemorating global history as well as our own personal histories are equally important," she said. ■



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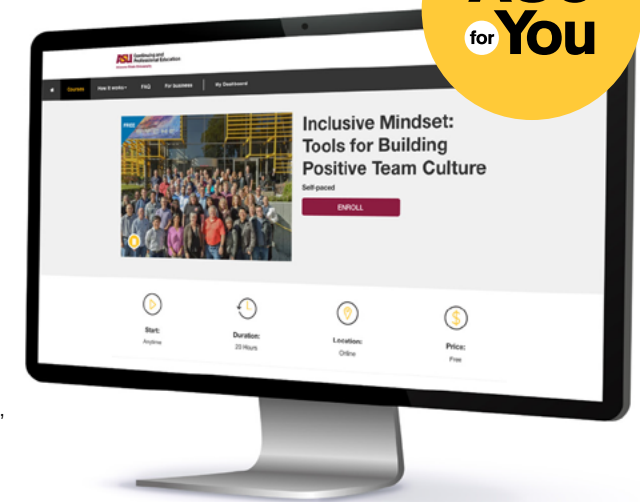


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