Last spring at the Arizona Board of Regents meeting, Provost Jeffrey Goldberg said CALS is “the broadest college in terms of technology and techniques at the University of Arizona.”

We owe it to our students and you to maintain and build on this reputation. Technology is fully embedded in all we do; it is an exponentially powerful lever, and it’s not going away. We must provide that lever to our students through their education and to you via our research and Extension.

Like you, our future graduates must be leaders and job creators. So, we must continually ask, what new technologies will develop over the next half-decade and beyond, how do we contribute to their development, and how do we better prepare students for them through our 18 diverse degrees?

In the past year we have addressed fast-approaching opportunities in our academics, research, and Extension by:

» Adding two new bachelor’s degree programs: Biosystems Analytics and Technology and Agricultural Systems Management (at UA Yuma).

» Earning a 51% increase in awarded research funding over the past three years while launching major research initiatives in human and other animal vaccines, therapeutics, and precision agriculture.

» Releasing two broadly noted economic impact studies that proved valuable for public understanding of agriculture’s economic value: Pinal County agriculture provided $1.1 billion for the local economy in 2016 (top 2% of U.S. counties in cotton, milk, cattle); Maricopa County agriculture provided $1.95 billion (top 1% of U.S. counties in vegetable, potato, melon).

As I write this, we’re all preparing for the 2019-20 academic year. Especially me as my son will be a UA Freshman. Thank you for your continued support and the impact you make every day in agriculture, commerce, health and helping professions, science and technology, and our three pillars of sustainability.

Stay updated on our news by visiting cals.arizona.edu, and for impactful storytelling from our Emmy Award-winning documentary team, go to Landmark Stories on YouTube.

Bear Down!  
@UAaglifevext
ON THE MOVE

JULIE FUNK

Julie joins the UA from the Michigan State University College of Veterinary Medicine. She will lead the education, outreach and research programs within the College of Veterinary Medicine. Her duties will include directing the structure and implementation of curriculum; developing research and outreach missions that incorporate emerging trends and needs in veterinary education; heading fundraising and development efforts; and participating in faculty and administrative recruitment.

At Michigan State, Funk led the strategic reinvention of curriculum to strengthen the profession, initiated a clinical skills laboratory, and established the first career services advisor position in the college’s history. Funk taught public health and epidemiology for six years at The Ohio State University before joining MSU faculty. She earned her DVM degree from the Michigan State University College of Veterinary Medicine in 1991.

LAURA SCARAMELLA

Laura Scaramella is the new director of the UA’s Norton School of Family and Consumer Sciences after more than 15 years at the University of New Orleans. She has been chair of UNO’s Department of Psychology for the past three years with research interests focused on parenting and child development.

Scaramella will work with faculty and community partners to reimagine the school’s strategic vision to better match community and research needs, securing more resources for its programs in doing so. She also plans to support a diverse student population with a curriculum that extends learning outside the classroom.

“I am excited to partner with the faculty, staff and students to create a bold and innovative path for the Norton School,” said Scaramella. “This path will uniquely leverage our greatest assets: the culture and diversity of Arizona’s heritage.”

PATRICIA STOCK

Patricia Stock joined the UA in 2001 as an assistant research professor in the former Department of Plant Pathology in CALS. In 2018, Stock became the interim director of the School of Animal and Comparative Biomedical Sciences and was recently appointed as the director of this school with the title of Weiler Endowed Chair in Animal Sciences.

Stock earned her B.S. in biology and her Ph.D. in natural sciences at the National University of La Plata, Argentina. Stock is the recipient, among others, of the Founders Lecturer Award from the Society of Invertebrate Pathology and the recipient of the Diversity Award and David Cox Teaching Award from CALS.
SCHOLARSHIPS ARE A DIRECT AND VITAL WAY TO SUPPORT CALS STUDENTS ALONG THEIR EDUCATIONAL JOURNEY.

With University of Arizona undergraduate tuition increasing on a ten-year average of 8.4% per year for resident students, and 6.9% for non-resident students, according to the Arizona Board of Regents, it becomes more critical with every year that we are able to help defray this ever-rising price of education.

Thanks to the generosity of our donors, CALS is on track to award over $1 million in scholarships to 650 students during the 2019-2020 academic year. Many of these awards replace or reduce the need for borrowing student loans.

Alongside the direct financial impact that scholarships have on our students, the sense of faith and encouragement these awards convey can last a lifetime. This sentiment was articulated so well in Paige Renaldo’s thank you letter to her scholarship donors. Paige is a Natural Resources major with an emphasis in Wildlife Conservation and Management and a recipient of the Charles R. Coughlin Memorial Scholarship in Wildlife Management for the 2019-2020 academic year.

“Earning this scholarship has been the boost I needed to help me believe in myself and the better world we can make,” Paige wrote. “Now I am so much closer to becoming the wildlife biologist that I have always dreamed about being.”

Giving opportunities to support scholarships range from creating an endowed scholarship in your name, to donating any amount, any time online to support students in the academic unit of your choice. Visit cals.arizona.edu/invest/invest-cals for more information from the CALS Development, Alumni, Advocacy & Corporate Relations team. To give online to students in your preferred academic area, visit this link directly: http://bit.ly/CALS-scholarships.
A LETTER OF THANKS

As a first-generation student attending the University of Arizona, I am encouraged to take full advantage of my education. Currently, I have a double major in Nutritional Sciences and Public Health as well as a minor in Africana Studies. While at the UA, I have participated in various volunteering and internship opportunities. I was fortunate to volunteer with Juntos Por La Salud where I traveled to different communities and provided screening and health education to underserved populations. Additionally, I completed a peer mentoring internship where I assisted, supported, and provided resources to first-year students. I believe the knowledge and skills I have obtained from my majors, volunteering experiences, and this university, have contributed to preparing me for my future goal of becoming a nurse practitioner.

When I decided to attend the UA, cost was a major factor I had to consider. The expense of school can definitely be overwhelming and discouraging at times. However, scholarships have allowed me to be relieved of such pressures. One of the major scholarships I received from The College of Agriculture and Life Sciences was the Ruth Reed Cowden Scholarship, which has helped me to focus on one of the most important aspects of school – learning! Furthermore, I have been able to dedicate more time to studying as well as seeking out educational resources such as attending on-campus tutoring sessions, professor office hours, meeting with my academic advisors, and more. This scholarship has lightened my financial burden, encouraging me to build and maintain my work ethic as well as reach educational success in each of my classes.

Education has always been an important factor in my life, and knowing that I am able to focus more on learning rather than financial stress is a true gift. As a nurse practitioner, I want to work with world organizations such as UNICEF or UNESCO and use my experience to provide ideas and procedures for controlling infectious diseases, reduce infant and child mortality rates, and help in easing the difficulties of children and adolescents with chronic conditions in developing countries. Obtaining this scholarship has allowed me to prepare and get one-step closer to achieving this longtime future goal.

Passing on the encouragement that has been given to me, I hope that students will be motivated to seek out scholarships as there are many opportunities available. Nevertheless, it is up to us as students to take initiative and apply!

Debbie Ocansey
Double major in Nutritional Sciences with Nutrition emphasis and Public Health
Recipient of 2019-2020 Ruth Reed Cowden Scholarship

“Attending college is undoubtedly a huge privilege, and I’m grateful that I can have the opportunity to do so.”
WELCOME HOME, ALUMNI

Homecoming is one of the best times of the year on campus. Friends and alumni from all over come back to the University of Arizona to reunite with old friends and participate in all of the activities.

The Dean’s “Almost World Famous” Burrito Breakfast is one of the most popular events of the day. Start your day at the Forbes Courtyard on Saturday, November 2, 2019, from 8 to 10 a.m. with a delicious hot breakfast, live music and loads of fun!

You could win a “Behind the Scenes” VIP tour of University of Arizona athletic facilities, tickets to the UA/ASU football game on Friday, November 30, or even a chance to “Dunk the Dean”!

Special guests have been invited including UA President Robert C. Robbins, Vice President and Director of Athletics Dave Heeke, and UA Women’s Basketball Coach Adia Barnes.

Homecoming is a special opportunity to see people that have been instrumental in your lives. Visit with your favorite CALS faculty as well as special guest Dr. Robert Briggs, Professor Emeritus!

Can’t wait to see you there!

L to R: Dr. Robbins with Cheryl Keithly; Greg and Loralee Wuertz with Becky Jordan; Richard McPherson and Dr. Robert Briggs.
AND THE AWARD GOES TO...

the exceptional alumni and friends of CALS!

A host of people gathered together on May 17, 2019, at the Hacienda Del Sol Guest Ranch Resort in Tucson to celebrate the achievements of fellow alumni and friends at the CALS Spring Awards Dinner.

CALS was proud to recognize Dennis Dugan, Pam Turbeville and the Alpha Pi of Alpha Gamma Rho Fraternity with one of the most prestigious awards bestowed by the college, the Eugene G. Sander Lifetime Achievement Award.

Ian Pepper accepted the UA Alumni Association Extraordinary Faculty Award, recognizing his exemplary support of students and achievements in his field. Read more about Pepper on page 13. Congratulations to all!

Additional 2019 Award Winners

Paul Bush – Outstanding Achiever
Stephen Martori III – Early Achiever
Ron, Earle, and Robert Rayner – Extensionists of the Year
The Hartman Family - Heritage Family
John Boelts - Science Communicator of the Year
Dave Bogner - Carol Knowles Award for Excellence in Development & Alumni Relations
Finding a Place to Belong Through Agricultural Education

Early in her high school career, Shelby Humbarger made the decision to join her school’s Future Farmers of America chapter, a move that changed the course of her life.

Shelby Humbarger wants to make an impact, to be an encouraging source of support for those looking for a place and purpose in the world—she wants to be a teacher.

An incoming freshman in the College of Agriculture and Life Sciences pursuing a Bachelor of Science in Agricultural Education, Technology, and Innovation, she knows firsthand the important role educators play.

Growing up in Mayer, Arizona, where the population barely exceeds 1,500, Humbarger didn’t always see opportunity. By the time she entered high school, she had already experienced unimaginable loss. Her mother passed away in 2012; three years later, her father lost his battle with stage 4 lung cancer.

“I believe that agriculture came into my life when I needed it the most,” said Humbarger. “For years, I felt like I didn’t know where I belonged, and I couldn’t see what my future held.”

That all changed her freshman year in high school, when Humbarger, like many students in her community, joined her school’s FFA program.

“When I joined the agriculture program, I fell in love with the topics and the willingness to serve others. Everything agriculture teaches you impacts the world and our communities.”

Through the program, she learned far more than animal husbandry. She performed pH testing, learned to weld,
“Not many people in my community can afford to go to college. I felt like I wasn’t going to be able to go myself.”

and worked with drone and remote sensor technology. Most importantly, she found a real mentor in her FFA academic advisor, Jeff Dinges.

“I first met Shelby her freshman year of high school,” said Dinges. “I could tell she was looking for a place to belong right away.”

A Wildcat and CALS alumnus, Dinges shared a similar background. “As a youngster, about her age, I was on my own, seeking my own home as well. I found that in the FFA at Peoria High. I chose a career in agriculture education because I wanted to impact students the way my advisors did for me.”

Most of all he wanted to help her get to college.

“Shelby is the prime example of why we do what we do as agriculturists and educators. To save lives. To impact them for the future. To allow them an opportunity to become selfless, loving, productive members of society.”

“Not many people in my community can afford to go to college. I felt like I wasn’t going to be able to go myself,” said Humbarger. “But my FFA advisor was so set on me getting to the UA. He said, ‘You’re going, and we’re going to make it happen.’”

With her advisor’s support and continued encouragement, Humbarger applied for and received a record number of scholarships and grants, including the prestigious Mary Kidder Rak Scholarship. Awarded to one student per year and renewable for three years, the scholarship was established through a generous gift from the Rak estate to celebrate the legacy, determination, and resilience of one of Arizona’s beloved cattlewomen. Humbarger knows a thing or two about determination herself and is looking forward to beginning the next stage of her life at the University of Arizona. “I’m excited. My family’s rooting for me but I believe my parents would have been especially proud of me. My family knows I can do it. They know how hardworking and determined I can be. Nothing nowadays comes easy, and you have to work to achieve something, but you best believe hard work does pay off.”

FFA academic advisor Jeff Dinges (left), and Humbarger (right) accepting the Mary Kidder Rak Scholarship.
Prolonged Spaceflights Could Weaken Astronaut Immune System

“What NASA and other space agencies are concerned about is whether or not the immune system is going to be compromised during very prolonged spaceflight missions,” said Simpson.

Richard Simpson, CALS associate professor of nutritional sciences and senior author, recently published a new study that examines the effects of long-term spaceflight on astronaut health – specifically, on the immune system’s ability to keep astronauts healthy in space.

NASA hopes to send a human mission to Mars by the 2030s, and that journey could take as long as three years round-trip; far longer than any human has ever traveled in space. Studies have shown that spending extended periods of time away from Earth comes with some health risks, like muscle and bone loss due to the effects of microgravity. But scientists didn’t know whether the unique conditions encountered by astronauts had an impact on the immune system, until now.

“What NASA and other space agencies are concerned about is whether or not the immune system is going to be compromised during very prolonged spaceflight missions,” said Simpson.

The new study, published by the American Physiological Society, sought to determine the effect of long-term spaceflight (six months or more) on “natural killer” (NK) cells – a type of white blood cell that kills cancerous cells in the body and prevents old viruses from reactivating.

Researchers compared changes in NK-cell function in eight crewmembers who completed missions to the International Space Station lasting around six months with healthy controls who remained on Earth. Blood samples were taken before launch, at several points during the mission — 10 days in, 90 days in, and just before returning to Earth — and after the mission completed. The results show that long-term spaceflight does appear to have a detrimental effect on NK-cell function.

Simpson and his fellow researchers at NASA’s Johnson Space Center are already at work on potential countermeasures that could help keep astronauts healthy in space. Those countermeasures include nutritional intervention, pharmacological intervention, and increased exercise, all of which have been shown to have a positive effect on immune system function.
The University of Arizona School of Animal and Comparative Biomedical Sciences received a $1.5 million gift from Victor P. “Vic” Smith to establish an endowed chair in food safety education in January 2018.

“Education in food safety is becoming increasingly important in our lives,” said Patricia Stock, director of the School of Animal and Comparative Biomedical Sciences. “The generous contribution of Mr. Smith will not only contribute to the enhancement of student educational and engagement opportunities, but will also help increase the visibility of our food safety program at the national and international levels.”

Stock has selected Margarethe Cooper, an assistant professor of practice in animal and comparative biomedical sciences, to be the inaugural holder of the Victor P. Smith Endowed Chair in Food Safety Education.

During her postdoctoral training at the UA, Cooper studied the bacterium Campylobacter jejuni in the food chain. She was also a research affiliate for the U.S. Department of Agriculture in Albany, California. The support of the endowed chair will help Cooper to develop and promote food safety educational programs and connect students with industry partners for food safety-related career opportunities.

As companies strive to ensure the health and safety of consumers through all stages of the complex product supply chain, education and training in food safety is becoming increasingly important to the industry.

The University of Arizona recognized Smith for his longtime support of UA and the College of Agriculture and Life Sciences by awarding him an Honorary Doctor of Science from CALS during Commencement on May 10, 2019.

Smith is CEO of JV Smith Cos. Based in Yuma, Arizona, JV Smith Cos. is a diverse group of operations with farming, cooling, distribution facilities and shipping capacities in Arizona, California, Colorado and the Baja peninsula of Mexico.

In addition to his work with JV Smith Cos., Smith is actively involved in Arizona community and agricultural organizations, having served on more than a dozen boards over the past 30 years.

In 2005, Smith named a conference room for his parents in the Glen G. Curtis Building at the Yuma Experiment Station. He also helped to establish the Yuma Center for Excellence in Desert Agriculture.

“Over the years, Vic has been not only one of our biggest supporters, but an inspiration to me to innovate and a leadership mentor,” said Shane Burgess, Vice President for Agriculture, Life and Veterinary Sciences, and Cooperative Education.
CALS “HOME AWAY FROM HOME”

THE PERRICONE FAMILY ACADEMIC ADVISING CENTER WHOLE-HEARTEDLY WELCOMES STUDENTS TO THEIR “HOME AWAY FROM HOME”

by Nancy Rodriquez-Lorta

Our team embraces a diverse population of students in promoting a student-centered collaboration as they enter their new University family. We are here to help new students find their place and connect, and in collaboration with the CALS recruitment team, we are one of the first points of contact for students. From new student orientation to commencement, we support students throughout the duration of their undergraduate journey.

Four college academic advisors dedicate their time to providing a strengths-based approach to all CALS students within one of the 19 majors. Meeting with students individually for academic advising, coaching, support, and major/career exploration, we help students align their strengths, interests and value with future career paths and ensure no student goes without constant access to professional support.

In addition, we host student leadership groups, including the CALS Ambassadors and CALS PALS Peer Mentors. We work with CALS First Cats—for first generation students—and the newly-formed CALS Connections mentorship program.

Among our many annual events including the “Student Appreciation Event”, we work with students to learn and understand grade calculations and the importance of being familiar with their academic progress throughout the term. During some of our more leisure-based events, students learn what resources are available and how to go about finding them, while building cohesion with their classmates, staff, and faculty. In working closely with the rest of the Career and Academic Services unit for personal and academic development, students remain the focus of the Advisors’ work.

GARY & BARBARA PASQUINELLI CAREER CENTER UPDATE

by Kyle Sharp

When students are considering an opportunity, such as an internship, we help them prepare for the search and interview processes.

Lee Dueringer, Career Center Director, can often be found at industry events, advocating for CALS students who have access to opportunities curated through the CALS Internship Library/Job Board as well as those provided campus wide by UA Student Engagement & Career Development through their system called Handshake.

Alumni and industry partners are also an important part of the Career Center’s success. In 2018, the center invited two CALS supporters to become honorary members of the Dean’s Leadership 50 (DL50) to recognize their contributions. Cass Antle received a membership for coaching students in etiquette and protocol, and Dan Klingenberg was recognized for his continued generosity and wisdom in support of the DL50 & CALS Career Center.

Please contact Kyle Sharp, ksharp@email.arizona.edu, or Valeria Martinez, vmartinez@email.arizona.edu, for more information about how you can help Career Center Programs.
EMERGENCY FUNDING GETS CALS STUDENT WITH RARE NEUROLOGICAL SYNDROME BACK TO CLASS

When CALS student Kara Dunn set off on a trip to Spain last summer, she never imagined she would return with a very rare and serious neurological disorder.

by Rosemary Brandt

Three days into a summer vacation in Spain, Kara Dunn, an honors student in the Department of Nutritional Sciences, began to experience double vision. She decided to sleep it off, and when she awoke she soon realized she couldn’t blink or smile.

Kara was rushed to the hospital, where things progressed very quickly. “It reached a point where Kara had been in the hospital for two days and still did not have a diagnosis. She was slowly becoming more and more paralyzed. Eventually her breathing became affected,” said her brother Ryan.

A medical student at the Mayo Clinic, Ryan called on his neurology professors for a consultation.

Together with Kara’s primary care physician, the group crafted a letter to the doctors treating her case in Spain. Within four hours, she had a diagnosis—Guillain-Barré syndrome, a rare neurological syndrome in which the immune system attacks the nerves.

“I realized quickly that if I were to fight and fight hard, I had to remain positive. And part of remaining positive was ignoring what would happen in the distant future and just focusing on getting well enough to be transported home,” Kara recalled. “I put up a mental wall against whether or not I would ever walk again, ever write or ever even talk. And I just focused on the next step.”

Kara’s story and efforts to get her home made international headlines. Medically airlifted to Phoenix, she received treatment at the Barrow Neurological Institute in Phoenix. While most people with Guillain-Barré syndrome fully recover, Kara’s case is uniquely complicated.

“I was actually diagnosed with Miller Fisher Syndrome at the same time as Guillain Barré Syndrome. Miller Fisher Syndrome is a sub-variant of Guillain Barré, but they usually occur individually and not together,” Kara said. “The overlap of the two conditions made my case even more complicated and resulted in both full facial and full body paralysis with need for intubation.”

Thanks to emergency funding made available through both CALS AG 100 Council and the Honors College, Kara is able to return to school part-time, with two online classes offered through the Department of Nutritional Sciences. While she continues to work with her doctors in Phoenix, these classes will help keep her moving toward her goals.

Kara’s experience has only further fueled her passion. “I am very interested in nutrigenomics, epigenetics, and precision wellness, and I plan to ultimately pursue an MD or MD/PhD and practice functional medicine,” said Kara. “My goal is to one day teach patients how their genes and environment affect their health.”
GIVING BACK

Here we celebrate two supporters, Fran Colwell and Ian Pepper, for the groundbreaking impacts they are having on our students studying environmental science and conservation. In partnership with their wives, Sandy Koizumi and Barbara Pepper, both Fran and Ian are funding student scholarships now. They have also included endowed scholarships in their estate plans, so they can change students’ lives forever.

FRAN COLWELL

In 1975, 20-year-old Fran Colwell started digging into topics like ecology, wildlife management, and resource protection for his major, Forest Watershed Management. As he laced up his hiking boots and stepped outside of the traditional classroom, Fran knew he was on the right path, as “It came easy to me, and I loved it all,” Fran said.

In 1977, Fran became part of the first cohort to graduate from this new, conservation-focused program in the School of Natural Resources and the Environment (SNRE). What Fran then accomplished is a testament to the power of his education and the hard work he put into his public lands career.

Fran worked in fire, timber, resource, and recreation management all over the West. From preserving wilderness areas to protecting wild rivers, Fran created innovative programs, built strategic partnerships, and devised sustainable solutions so that our country’s most inspiring wild places can be experienced by generations to come. Fran recently retired after 40 years with

“I like ensuring that a future generation of conservation leaders emerges to guide us through the difficult days ahead.”

SNRE graduate Fran Colwell, circa 1975.

Today, Fran Colwell and his wife, Sandy Koizumi, live in California and enjoy outdoor adventures across the world.
the U.S. Forest Service, working most recently with the San Bernardino National Forest Program. He was Director for Recreation, Heritage, Lands, Special Uses, Partnerships and Volunteers.

Fran says that because SNRE gave him a broad education that uniquely positioned him for career success, he enjoys giving back directly to SNRE students today.

“This is ‘paying it back,’” he said. “I like ensuring that a future generation of conservation leaders emerges to guide us through the difficult days ahead.”

**IAN PEPPER**

It was 1970 when Ian Pepper flew from England to New York City with only $50 in his pocket. The 24-year-old hopped on a Greyhound to Columbus, Ohio; the ticket shaved another $20 from his net worth. When Pepper arrived at The Ohio State University to begin his graduate work in soil microbiology, he had a paid fellowship—but his first check wouldn’t come for weeks. Thankfully, his department head offered a loan.

“He took it out of a little old tin cash box,” Pepper said. “That was very, very important – both the loan, and the fellowship.”

After earning his master’s degree and Ph.D., Pepper—now known as “Dr. Pepper”—and his wife, Barbara, came to Tucson, where he joined our Department of Environmental Science.

Today, he is a distinguished faculty member and researcher who drives advances in water-reuse technology. He is paving the way for our children and grandchildren to survive in a world where water is increasingly scarce. He has mentored dozens of students and says they were critical to his success.

“Students have always given to me,” he said, “and so it’s time for me to give back.”

Ian and his wife, Barbara, recently celebrated Ian receiving the UA Alumni Association’s Extraordinary Faculty Member Award.

“Students have always given to me...and so it’s time for me to give back.”
UA LAUNCHES ONLINE COMMUNITY FOR WILDCATS

The Bear Down Network will serve as an online gathering place for current UA students, alumni, and UA faculty and staff.

The UA Alumni Association is making it easier for Wildcats to make connections, reach career goals and stay connected to the UA with the launch of the Bear Down Network.

“We’re excited to unveil the Bear Down Network because it leverages the power of the UA alumni community,” said Melinda Burke, president of the UA Alumni Association.

“Today, our alumni base is composed of over 290,000 alumni and supporters, who are eager to help Wildcats succeed.”

Through the Bear Down Network, Wildcats can access an alumni job board and directory, as well as networking, mentoring and career-development opportunities. They can also serve as mentors, share job opportunities and stay up to date on the latest UA news and events.

In addition to career resources, the Bear Down Network will feature relationship-building opportunities. For example, through the alumni directory, users can connect with former classmates, find others employed in the same industry, and join academic college and interest groups.

The Bear Down Network is open and free to all Wildcats, including current students, alumni, and UA faculty and staff. Create your account at beardownnetwork.com today!