

School of Animal & Comparative Biomedical Sciences

Feature

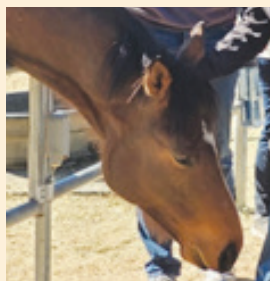
ISSUE HIGHLIGHTS

Research



Dr. Sadhana Ravishankar and her team hosted Dr. A.W. Santosh Kumar, the Pro-Vice Chancellor of Amity University, Mumbai, India to discuss research collaborations.
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Teaching



Students in the Applied Animal Behavior (AAB) Emphasis – Companion Animal Focus attended several field trips with community partners around Arizona.
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Extension



Dr. Betsy Greene was awarded a Heart of Extension Award
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2021 Global Symposium on Racing a Resounding Success



Recently appointed President and CEO of the National Thoroughbred Racing Association, Tom Rooney, delivers the 2021 Symposium Keynote address.

The Race Track Industry Program (RTIP) hosted the 47th Annual Global Symposium on Racing at Loews Ventana Canyon from December 5 – December 7, 2021. The event, which had to be cancelled in 2020 due to the pandemic, is a principal funding source for the RTIP. Given its importance to both the racing industry and to the RTIP, incoming Program Chair, Robert Hartman, saw this event as critical for successfully kickstarting his tenure as the leader of this storied program.

“We knew we needed to make a big splash with the selection of topics and speakers in order to attract the widest audience for the Symposium as well as provide our sponsors with reasons to continue to support the RTIP”, said Hartman. “The industry support was overwhelming; the content was worth the price of admission, and the Symposium delivered one memorable moment after another.”

RTIP students and staff hosted over 400 attendees, as well as 40 guest speakers and panelists. Additionally, the RTIP was able to attract some adjunct meetings that extended the conference an additional day and was instrumental in attracting many first-time attendees.

Sponsorship revenue hit a new highwater mark of \$200,000 which contributed to the profitability of the event. Hartman asserted, “Our sponsors are the lifeblood of the Symposium as the financial contributors. The trade show area comes alive during the breaks, allowing the sponsors

the ability to unveil new technologies and products to the industry”.

The Symposium got off to a quick start with a welcome message from CALS Associate Dean, Michael E. Staten, who

(Racing Symposium continued on 4)

From the Director



As I look back over the past 8 months of serving in the Interim Director position, I have both learned a lot and learned how complex this job is. The latter is not a surprise, having served for a number of years as a department chair at another state university. The complexity here, however, is different (here, I am responsible for the care of human and nonhuman animals!), which is what turns it into a valuable learning opportunity. These are good developments, even though our unit has been challenged with an unusual amount of change in faculty and staff. Among our faculty, for example, we will be replacing Drs. Coppola, McQuade-Kochanowski, and Hartl-Schutte, who will be leaving the university at the end of this semester. In addition, we are searching for an equine scientist to teach required equine program courses, necessitated by the staff managerial changes at the Al-Marah Equine Center that became effective this past January. A further hire this year will be a tenure-track specialist in animal genetics. In other words, we have launched five faculty searches in the past few months! These significant, near future additions to our teaching and research faculty, provide opportunities for curricular revision, program improvement, enhanced student learning outcomes, and new research collaborations.

One particularly pleasurable part of my learning experience has been getting to know our faculty and staff in much greater depth than I had before. I made a point to speak to each of my ACBS colleagues to learn about their interests, aspirations, and frustrations. As a result, I have come to understand and appreciate the significant and vital contributions to our School by each of our faculty or staff more fully. For example, our faculty research program, which includes research conducted by some of our extension faculty, and our program's success in grant support, is among the strongest in the college. Of course, our graduate and undergraduate students benefit from this combined research strength. It is also important that much of our unit's research is of high relevance to human and animal health as well as sustainable agriculture, areas of justifiable concern to our stakeholders in the animal industry and to the wider public.

Our School's strengths and challenges were clearly articulated in the Self-Study Report that was prepared by our Academic Program Review Committee and circulated among our faculty and staff in advance of our School's external review on April 26-27, 2022. The report provides a road map to how we can collectively overcome our challenges and continue to build on our significant strengths in teaching, research, and extension. Many of our faculty, staff, and students will be meeting with the external review team and will thus have an opportunity to be heard, to make suggestions, and participate in building that future. The review team will also meet with university administrators and will submit a final report with their analysis and recommendations. In my experience, this is not a pro forma exercise. Rather, it usually facilitates desired, positive change.

With the pandemic on the decline, I look forward to more person-to-person interactions, to more informal social gatherings, to even greater opportunities for us all to get to know and appreciate our respective contributions. Please enjoy our beautiful spring weather and stay healthy and safe.

H. Dieter Steklis

Director Interim and Professor, ACBS
Affiliate Faculty, Psychology and Family Studies & Human Development
Co-Director, Human-Animal Interaction Research Initiative (HAIRI)
University of Arizona

Emeritus Professor of Primatology
Rutgers University

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Welcome Dr. Cyprianna Swiderski - Director, Al-Marrah Equine Center

Dr. Cyprianna “Chipper” Swiderski joins the ACBS faculty as the new Director of the AZ Experiment Station Al-Marrah Equine Center. She brings world-class knowledge of equine medicine and the human-equine connection to the UArizona.

Dr. Swiderski previously served as a professor of equine medicine at Mississippi State University’s College of Veterinary Medicine where she investigated equine asthma and managed affected horses. She will continue her equine asthma research in Tucson which was recently highlighted by KOLD News 13.

Breath of fresh air: horses helping in asthma research at UArizona

<https://www.kold.com/2021/10/08/breath-fresh-air-horses-helping-asthma-research-uarizona/>



Dr. Cyprianna Swiderski, Director, Al-Marrah Equine Center, talks with KOLD News 13 about her equine asthma research.

ACBS’s Equine Emphasis: Transitioning to an Improved Program

ACBS students pursuing an Animal Science degree with an equine emphasis will have noticed a transition beginning in January 2022. Transitions involving the curriculum and instruction can be worrying (or even scary) to students who need to complete their course requirements. To reduce or offset the worry, let me explain what has happened and why it presents an exciting opportunity to offer an even stronger equine program to the benefit of our students.

In January 2022, the Al-Marrah Equine Center transitioned to be fully managed by the UA Arizona Experiment Station who manages several research centers around Arizona (e.g., V-Bar-V Ranch, Yuma Agricultural Center). This necessitated staffing changes and an evaluation of the Al-Marrah facilities and equipment for their suitability for teaching. As I am sure you can appreciate, when working with large, powerful animals—the horse—student safety comes first. Consequently, much attention in the past few months has been directed toward updating the facilities for equine teaching and ensuring that the essential equipment for working with horses is in sound condition.

The transition in management also provided an opportunity to evaluate the equine emphasis curriculum. To ask, in effect, if the course offerings are still in the best interest of the students. Some students enroll in these courses because they already have some experience working with horses, and they wish to become more knowledgeable and proficient in horsemanship



Students practice safely dismounting from their horses during a recent ACBS 272 Intro to Horsemanship class.

so that they can continue to enjoy the companionship of horses for pleasure or sport. Others enroll because they intend to find a career in the horse industry. For both kinds of students, the curriculum needs to provide the scientific knowledge and skills to understand horses, to

develop safe handling and riding practices, and ultimately to build fulfilling relationships with horses for pleasure, sport, or work.

ACBS has a task force in place to evaluate the curriculum with a special focus on courses needed for a variety of potential equine careers. Our

courses and how they are sequenced must also address the needs of beginners as well as advanced students in their professional development. To help us accomplish these curricular goals going forward we plan to add a full-time faculty, trained in equine science to our team this Fall.

None of this can be accomplished without the most important equine instructors—the horses themselves! Although the ACBS teaching horse herd will continue to be housed and cared for at the Al-Marrah Equine Center, the transition also provided an opportunity to evaluate each horse’s suitability for teaching. As many of you who work with horses know already, horses, like people, have different temperaments and personalities, and past exposure to different experiences, which make some horses more suitable as “teachers” than others. It takes time to figure this out, but it is worth the investment because carefully selected horses are safer for students, especially at the beginner level.

It is also equally important to ensure the safety and welfare of our horse partners which is easy to overlook if we are focused solely on what the horse can do for us or how we can get it to do what we want. In ACBS we are committed to teaching about horse welfare to promote a fulfilling human-horse partnership and to making sure that our horses are given the level of care to achieve the best welfare possible.

- Netzin Steklis, PhD
Associate Professor of Practice



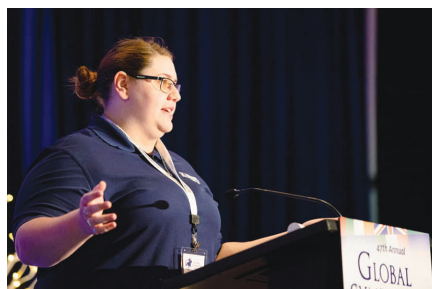
Students ride in the Al-Marrah Equine Center covered arena during a recent ACBS 272 Intro to Horsemanship class.

Racing Symposium

then introduced the event's Keynote Speaker. The 2021 Keynote address was delivered by former U.S. Congressman Tom Rooney, who was recently appointed President and CEO of the National Thoroughbred Racing Association. The first day of sessions also included the CEOs from the largest racetracks in the U.S. discussing their vision of where racing is headed and what steps need to take place to continue to move it forward. Charles Hayward, Publisher of the Thoroughbred Racing Commentary and former CEO of the New York Racing Association, said in his editorial, "In my experience, having attended the RTIP symposium for many years, there has never been one panel that had four Presidents/CEOs representing four of the most important racetracks in the country. This was a very exciting opportunity to discuss Thoroughbred racing with some of the best minds in the sport".

Central to the entire agenda was the Horseracing Integrity and Safety Authority's (HISA) role, as the federal government's regulator, with respect to matters of medication and safety.

Symposium attendees were treated to presentations from members of the HISA standing committees and heard spirited



MaryRuth Hodsdon's presentation on "ways to improve the safety of jump racing" landed her five job offers!

feedback from industry members affected by the regulations. Other Symposium topics included new wagering initiatives, such as legalized Sports Betting and Fixed-Odds wagering on horses, which could provide a link from pari-

mutuel wagering to the rapidly expanding sports betting world.

The second day opened with RTIP seniors on-stage presenting their capstone projects on topics from the "Structure of Racing Commissions", "Safety Improvement in Steeplechase Racing", Secondary School curriculum offering an "Introduction to Horseracing", and the "Importance of Traceability in our Aftercare Efforts".

RTIP students also were paired with industry leaders for the "Meet your Mentor" luncheon. The annual luncheon provides RTIP students with one-on-one interaction, rare industry insight, and in many cases, have led to long-term relationships with industry leaders throughout the racing industry.

Two exceptional RTIP students were recognized at the Symposium with awards. Graduating senior, David Range, was named the 2021 RTIP Outstanding Student of the Year and 2007 RTIP graduate, Dan Silver, was awarded the Jack Goodman Alumni Award.

Planning for the 48th Symposium rendition is already underway, stay tuned!



Robert Hartman (left) presents graduating senior, David Range, with the 2021 RTIP Outstanding Student of the Year award.



RTIP students participate in the "Meet your Mentor" luncheon with industry leaders.

Dr. Koenraad Van Doorslaer Receives Mentoring Award

Dr. Koenraad Van Doorslaer was awarded the **2022 Excellence in Postdoctoral Mentoring Award**. This award is presented by the UArizona Postdoctoral Affairs and recognizes a faculty member who provides exceptional mentoring to postdoctoral scholars. Dr. Van Doorslaer is an Assistant Professor in the School of Animal & Comparative Biomedical Sciences and also holds cross-appointments at the BIO5 Institute, the Department of Immunobiology, and the Cancer Biology & Genetics Graduate Interdisciplinary Programs.

Dr. Van Doorslaer's nomination was based on his inspiring leadership and his unwavering support of professional development opportunities. His mentees applaud his regular and constructive feedback and his propensity to foster independence in his postdocs. Dr. Van Doorslaer is routinely sought out as a mentor because of his "conscientious leadership philosophy and the supportive and intellectually stimulating research environment he cultivates."

"Koenraad has given me valuable insight into the early stages of a professorship and how to manage an active and impactful research program effectively and empathetically."

"Koenraad is the kind of PI that many postdocs in the department aspire to be."

"Koenraad was an invaluable resource...and extremely supportive of my decisions."

Dr. Van Doorslaer stands out for his role in creating Mentorship Committees for personnel in the School of Animal & Comparative Biomedical Sciences. These committees help postdocs meet their research goals while broadening their networks and strengthening their support structure. His postdoc mentees look to him as an invaluable role model and are constantly impressed by his dedication to mentorship and the actions he takes to support trainees, both past and present.

Congratulations, Dr. Van Doorslaer!

- originally published by UArizona Postdoctoral Affairs

<https://postdoc.arizona.edu/news/congratulations-recipient-2022-excellence-postdoctoral-mentoring-award>



Applied Animal Behavior Students Visit Community Partners

What a great start to a new year, a new semester, and a new cohort of the Applied Animal Behavior (AAB) Emphasis – Companion Animal Focus! This semester is the first time three AAB classes are being run in-tandem and the third cohort to successfully complete the ACBS Vet Sci AAB Emphasis – Companion Animal.

Bureau of Land Management Wild Horse & Burro Program

We hit the ground running in January with our first field trip to the Bureau of Land Management out in Florence, AZ to observe feral horse behavior. This community partner also showcased their Wild Horse Inmate Training Program (WHIP) to students. WHIP demonstrated how horses and people of our community can mutually benefit from innovative programs.

Here are some of the reflections our students took away from this first field trip:

“[Now] I would want to look more into the welfare of feral horses in the wild compared to that of horses in captivity.”

“I was honestly really impressed with the way things were run there after seeing the holding facilities and realizing how much care they give to the horses.”

“I found everything very educational and interesting to see from a behaviorist standpoint. After having read and discussed and learned about the horses’ behavior in the wild and in captivity, I went to this place with a whole new set of eyes.”

“I think [WHIP] should have a place in more prisons as it teaches the prisoners valuable life skills and gives the animals a second chance.”

“I was deeply moved by the wonderful work they do at the wild horse and burrow rescue and plan to donate to them in the future to help them continue their amazing work.”

4Ropin Ranch

Our second field trip found our students at a new community partner, 4Ropin Ranch. At this nationally recognized training facility, students learned about horse training and the importance of safety. They were even able to observe and try the facility’s therapeutic treatments!

One student commented, “We went to 4 Ropin Ranch and learned about horse safety basics and got to take a peek at the therapeutic facilities they have, which basically made me drool”.



Students visit the Bureau of Land Management Wild Horse & Burro Program in Florence, AZ.



Holding pens for the Bureau of Land Management Wild Horse & Burro Program.



Students learn about horse safety basics at 4Ropin Ranch in Marana, AZ.

Equine Voices Rescue and Sanctuary

Our third field trip was located in the beautiful hills of Amado at Equine Voices Rescue and Sanctuary. This field trip is another new community partner that helped round out the students’ knowledge of horse behavior with a rescue/sanctuary perspective. Here students were able to learn about what happens to individual horses that are victims of cruelty, neglect, and abandonment. They observed the many different behaviors and history these animals had and how the facility cares for them and maintains their welfare. Some of the student observations of this facility were as follows:

“[My thought on horses] changed dramatically after today though, seeing the horses and how they interacted with people and how each horse had a unique personality really helped me to understand them better.”

“Tuesday’s trip to Equine Voices was a really lovely experience. I loved hearing about and witnessing all the horses’ and burros’ personalities! But it does make me sad to think and learn about all their different backstories for why and how they ended up at the rescue.”

“This week we started off with a field trip to Equine Voices, I really enjoyed this trip because it showed a different side of the horse world. It introduced rescuing and showed the aftermath of horses that were abused, neglected and not properly cared for. Prior trips were more training based and now we got to see a sanctuary/rescue perspective.”

Our students will continue with their field trips all semester long learning from other community partners, including Pima Animal Care Center, HOPE Shelter, Valley Humane Society, Hermitage Shelter, Hope of Deliverance Rescue, and HoovesNHorns Animal Sanctuary.

By utilizing many of our partners in the community we are hoping to demonstrate to students that there are a multitude of opportunities available to them once they enter the work force. These field trips might even give them the opportunity to find their niche or develop ideas to participate with these local Arizona communities while pursuing their academic goals!



Above and below; Students learn about horse behavior at Equine Voices Rescue and Sanctuary.



Students visit Equine Voices Rescue & Sanctuary in Green Valley, AZ.

Welcome ACBS Academic Advisor - Jasmine Acosta



Jasmine Acosta, a Tucson native, joined the ACBS Academic Advising Team in the Fall of 2021. She is currently advising Veterinary Science undergraduate students (L-Z).

Jasmine graduated from the UArizona with a BS in Animal Science. While completing her undergrad degree she had the opportunity to work as an academic advisor assistant for ACBS.

After finishing her undergraduate degree, Jasmine worked in a cord tissue and blood lab, but quickly realized she missed working with students and changed career paths through an academic advising position in the Eller College.

About joining the ACBS Academic Advising Team, Jasmine says, "I'm beyond excited and thankful to come back home and begin a new journey with you all! I look forward to meeting you soon (in-person or virtually) and to learn more about your stories!"

Jasmine can be reached at jasmineacosta@arizona.edu.

ACBS Student Lily Tees Highlighted by Franke Honors College

The W.A. Franke Honors College at the University of Arizona provides an opportunity for exceptionally driven students to further explore their academic interests through elevated coursework, innovative research, and unique study abroad opportunities.

The program recently spotlighted ACBS student, Lily Tees, who is a Senior majoring in Veterinary Science (Applied Animal Behavior Emphasis) with a minor in Biochemistry. Here are a few highlights about her research and time as an Honors student.

Research Projects: I've worked as a research assistant at the Arizona Canine Cognition Center and I am currently working on my honors thesis with Dr. MacLean and Dr. Coppola. My thesis examines the effect of stress on cognition in shelter dogs. I record the behavior of dogs in their kennels at the Humane Society and code these videos to assess the frequency of stress-related behaviors. Each week I select dogs to participate in a cognitive task involving memory. I predict to see a correlation between stress level and performance on the cognitive task in shelter dogs. I hope to gain more insight into behavioral indicators of stress and enrichment initiatives for shelter dogs from my project.

Plans after graduation: I plan to attend veterinary school after graduation to obtain my Doctor of Veterinary Medicine degree. I hope to become a shelter veterinarian to treat homeless pets.

Focus Questions

What has been your favorite Honors course or experience that you have been involved with?

The companion animal behavior courses I have taken with Dr. Coppola have been the most influential to me. I have learned that there is so much more to veterinary medicine than I once thought there was and I am inspired to pursue animal behavior as a specialty within veterinary medicine. These courses were the most engaging of my undergraduate experience and have greatly improved my writing, critical thinking, and presentation skills.

What is something you have done during your time at the University of Arizona of which you are especially proud?

I traveled to Guatemala last summer with the Vida Club at U of A to provide free spay/neuter surgeries to pets in underserved communities. It was incredible to see how much of an impact our team made in a short time.

What message do you have for other Honors students on finding their own success?

I encourage other Honors students to get to know their professors early on. They can be an invaluable resource and guide you to unique opportunities within your major. Be sure to take advantage of any research opportunities!

Another Perspective

"I first became acquainted with Lily almost four years ago when she contacted me about a Freshman Honors Project. Her request was a bit unusual in that Freshman aren't normally ready for a research project and Lily had not been enrolled in one of my classes before. Despite not knowing Lily, I agreed to meet with her, and I was immediately impressed with her maturity, professionalism, and steadfast determination to become a Veterinarian.

Her ability to prioritize what is most important and necessary is a skill I have observed in her many times. She is level-headed and objective in her analysis of what steps need to be completed to achieve her ultimate goal of Vet School. She does not over-commit, over-extend or over-promise. She also doesn't make excuses. She simply sets her mind to the task and completes it, quite well with little oversight required.

In my applied animal behavior courses, Lily was always one of my highest achievers, quite frequently I set the upper bar for grading using her submission. I often used her assignment submissions as examples for subsequent classes. I also used her progress as a barometer for my own teaching. I could almost guarantee that if Lily struggled with understanding the concept (which didn't happen often) it meant that as a teacher, I did not teach it clearly enough. And while Lily's intellectual ability is well documented in her transcripts and her academic success is rightfully earned, what might not be documented in her transcripts is just how much of a pleasure Lily is to teach. She is that student that you might not notice at first because she can be soft spoken but once you realize her potential, it is limitless!"

- Crista Coppola, Assistant Professor of Practice, ACBS

- Originally printed 12/1/21, edited for length

<https://frankehonors.arizona.edu/news/2021/12/franke-honors-student-spotlight-lily-tees>



2021 ACBS Fall Outstanding Seniors

Paige Babcock

Outstanding Senior | Animal Science



Paige Babcock, graduated with a BS in Animal Science with an equine emphasis. Paige has always been passionate about helping animals and including them in her life whenever possible. As a high school student she would volunteer at animal shelters, such as Halo Animal Rescue and Petco pet adoption events. She continued to take part in various volunteer opportunities throughout her time at the UArizona by

joining the Wildcats Care Club and completing an internship at Therapeutic Riding of Tucson (TROT) in her senior year.

Paige would like to thank “all of the CALS department faculty, especially all of the professors I had during my 4 years at the UArizona. Many of them were influential in my success and made my animal sciences courses not just fun and intriguing, but worthwhile in my education”.

Paige’s future plans include applying to physical therapy school in the spring of 2022 to begin working towards becoming a Doctor of Physical Therapy (DPT). After completing her DPT she will pursue certification in canine and equine rehabilitation.

Samantha Johnson

Outstanding Senior | Veterinary Science & CALS



After completion of a dual degree in Veterinary Medicine and Wildlife Management and Conservation, Samantha Johnson hopes to attend a dual DVM/Ph.D. program. Through this program she will work towards her Doctorate in Veterinary Medicine with an emphasis in wildlife and a Doctor of Philosophy in microbiology. Her goal

is to eventually run her own research laboratory that will begin characterizing the microbiome of under-represented taxa (invertebrates and herpetofauna), as well as create opportunities for students of all backgrounds and skill levels. Additionally, she hopes that characterizing these microbiomes will give scientists a greater ability to manipulate the health of populations when novel pathogenic microbes are introduced into a system.

About her future goals, Samantha says, “As a student I was blessed to receive these opportunities that have truly shaped me into a more thoughtful scientist. I want to pass on these opportunities and experiences to the next generation of young scientists because it was how I found my passion for microbiology”.

While at the University of Arizona, Samantha had the opportunity to work with several research faculty including Dr. Matt Goode, Dr. John Koprowski, and Dr. Laura Lopez-Hoffman. She credits her achievements in these laboratories,

in part, to the financial support of the Arizona NASA Space Grant Internship, T&E Inc., Wallis Foundation, and Tucson Herpetological Society, which allowed her to be able to start her own research project characterizing the Gila monster microbiome.

Looking back on her time at the UArizona, Samantha reflects, “I got to meet so many wonderful people that taught me how to never give up on myself and showed me success is not a straight line. Many of these people were my mentors, advisors, professors, and CALS staff who I am endlessly thankful for”.



Samantha Johnson (right) with Dr. Dieter Steklis receives an award jacket in recognition of being named the CALS Outstanding Senior.

2021 Food Safety Conference

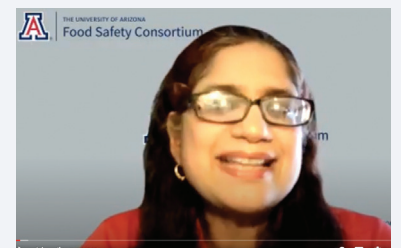
The annual UArizona Food Safety Conference was held virtually Oct 21 - 22, 2021. The conference attracted over 170 attendees over the two days and included keynote speaker, Alex Strong, Director of Development for CALS, as well as a variety of presentations that covered research, industry and extension aspects of food safety.

The conference incorporated a staff lightning talk session and a student poster session, both organized by Dr. Margarette Cooper, that highlighted some of the current research at the UArizona. Undergraduate students Kristina Raygoza (Ravishankar lab) and Madison Goforth (Kerry Cooper lab), along with graduate student Cesily Cirerol (Lopez lab), each won Top Presenter Awards in the student poster competition. Undergraduate student Shouq Alshahrani (Ravishankar lab) was awarded the Yuma Center for Excellence in Desert Agriculture (YCEDA) Sponsored Award and the Dr. Dan Engeljohn Crowd Favorite award.

The conference added breakout sessions to allow for further discussion amongst attendees. One such session,

organized by Richard Park, Chair of the Food Safety Consortium Youth/ Professional Development subcommittee, provided insight into careers in food safety. For the session, guest speaker Shelby Calvillo, was invited to talk about her journey from the University of Arizona to her current position as Sanitation and Safety manager for the MGM Resorts International – Aria/Vdara company. She also discussed different careers in food safety, networking with industry professionals and maintaining contact with them.

Learn more about the Food Safety Conference and the Food Safety Consortium at <https://safefood.arizona.edu/conference>.



Food Safety Consortium Chair, Dr. Sadhana Ravishankar, welcomes attendees to the Food Safety Conference.

2022 FFA State Horse Judging Contest

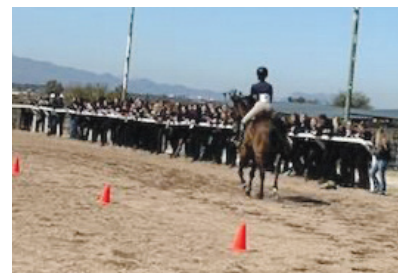
The 2022 FFA State Horse Judging Contest, held on February 25th, was a success due in part to the UArizona English Equestrian Team. The event was held at the facility where they train on the east side of Tucson. The team members used their horses to make up the four judging classes for the 140 judges joining from across the state.

Dr. Betsy Greene, Faculty Chair for the contest, worked with Shayla Bristow (CALs Student Chair) and enlisted Maddie Officer (UArizona student, equestrian team member and 4-H alum) and Dr. Joslyn Beard (Livestock Extension Specialist), to serve as officials. Additionally, a few equestrian team members helped listen to reasons.

A big thank you to the UArizona English Equestrian Team, Gardner Powell (Hunt Seat Coach), and the farm for providing the horses, handlers, and facilities to make this event happen!

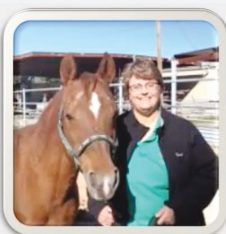
Clockwise from right:

1. FFA members evaluate a horse under saddle.
2. State Horse Evaluation Team Winner, AAEC Paradise Valley FFA Chapter.
3. FFA members give their reasons to the judges.



Heart of Extension Award

Dr. Betsy Greene was recognized as one of the recipients of the 2021 Heart of Extension Awards at a virtual ceremony held Oct 8, 2021. The annual awards recognize extension staff and faculty who put their hearts into their work. Congratulations Betsy on this well deserved award!



Arizona Livestock Incident Response Team (ALIRT) Updates



UArizona extension personnel (Dr. Betsy Greene, Nate Brawley, Dr. Joslyn Beard, and Alex Carlisle), AZ State Veterinarian Dr. Ryan Wolker, and AZ ALIRT Veterinarian Dr. Jim Lytle, participated in the NM-ALIRT annual conference in Socorro, NM on March 30 - April 1. There were excellent presentations and discussions on cattle and equine diseases, syndromic surveillance reporting, rural veterinary shortages, and more. AZ and NM ALIRT leaders have been working together to plan complementary training to both state teams, and the sharing of knowledge/training has brought good ideas and collaboration to each state.

USDA-NIFA Tribal Extension



USDA-NIFA Director, Dr. Carrie Castille (left), visited Arizona and participated in a conference on Tribal Extension hosted by Dr. Trent Teegerstrom, UA Associate Director of Tribal Extension (fourth from right). Dr. Betsy Greene, Extension Horse Specialist (third from right), conducted a presentation and participated in discussions on tribal extension activities.

The Director of the USDA National Institute of Food & Agriculture (USDA-NIFA), her Chief of Staff, and other NIFA members visited some Arizona tribal communities with tribal extension agents Juan Arias and Grey Farrell and heard from Specialists (Greene and others) about the ongoing tribal programming and impacts at the Marcopa Ag Center in late February.

Dr. Betsy Greene presented "One Health Horses Biosecurity Considerations in Tribal Communities" and shared extension publications/resources developed and used in the tribal programming (Apache Rancher Resource Guide, extension publications including: Biosecurity (article with posters translated to Apache and Navajo), body condition scoring, horse health evaluation, safe injection procedures, and disease and plant toxicity BOLOs - be on look out for). The USDA-NIFA visitors were extremely impressed with the collaboration of FRTEP agents and extension specialists/agents across Arizona.

Apache Ranchers Workshop

Dr. Betsy Greene and Juan Arias held a workshop with San Carlos Apache ranchers on February 10th. The ranchers learned how to estimate the age of horses by examining the teeth and participated in an enlightening and entertaining hands-on biosecurity activity (cleaning/disinfecting facilities) with Dr. Greene, and Juan shared great information on record keeping for herd health management. Later, Dr. Russ Tronstad shared information on crop insurance and other agricultural programs.



Dr. Betsy Greene uses a horse skull to show the bone structure of a horse jaw and how to evaluate teeth to determine a horse's age.

6th Annual Southern Arizona Equine Health Symposium

The 6th Annual Southern Arizona Equine Health Symposium was held Jan 22, 2022 at the UArizona Campbell Ave Farm. This event is a partnership between Cooperative Extension, local veterinary clinics, industry professionals, and local and national sponsors. With over 20 educational opportunities covering basic to advanced horse topics, participants could pick and choose. SAMSAR (Southern AZ Mounted Search and Rescue) brought in people and animals to demonstrate what happens when they are called in for a horseback rescue for our “edu-tainment” session during lunch. The “Knowing What’s Normal” vital signs hands-on demonstration has been requested each year and was popular for both new and refresher practice. Participants received a new extension publication to use at home (<https://extension.arizona.edu/pubs/knowning-what-normal-your-horse>). Additional presentations included dentistry, nutrition (Feeding performance/difficult horses, Horses 101: Back to basics feeding), Equine Allergies and Asthma, and Panels on Horse Industry Careers and Veterinary Careers.

Participants shared:

“The classes were full of great information...all of the staff were always present and helpful. Please let everyone know that I appreciate all you have done for Arizona’s horse owners to keep our four legged best friends healthy and happy.”

And:

“Just wanted to extend a huge thank-you to everyone involved in providing this event to horse-owners like me. I learned so much, and feel much better informed about how to improve my care for my horses after today’s event. It was so well-run, so organized, so seamless. Incredible!... Thank you so much, this is the best value for the money in equine education. Thank you for filling in a gap in the equine industry, because trainers and vets don’t have time to educate us about everything in our lesson/appointment for x particular issue, and this helps fill in some of those gaps. Thank you! I’ve already marked my calendar for next year!”

Planning for next year’s event (January 21, 2023) is already underway.



Photos from top: Dr. Betsy Greene helps participants take a horses vital signs in the “Knowing What’s Normal” presentation.

Dr. Anne Pearson (standing), assisted by Jonathon Henrichs, explains the importance of taking care of a horses teeth in “Doing Dental Right”.

The Southern Arizona Mounted Search and Rescue team (SAMSAR) shows audience members some of the maneuvers required for a horseback rescue.

UArizona Startup Wins Purina Pet Care Innovation Prize

In an announcement from Purina, University of Arizona startup uPetsia was named as one of five winners of the 2022 annual Pet Care Innovation Prize. Founded by Associate Professors Eric Lyons and David Baltrus, both in the College of Agriculture and Life Sciences, School of Plant Sciences, with Baltrus also holding a joint appointment in the School of Animal and Comparative Biomedical Sciences, the startup was launched with the goal of developing and commercializing a method to battle bad breath in dogs using a harmless bacterial strain.

Drs. Lyons and Baltrus received guidance and support from Tech Launch Arizona (TLA), UArizona Center for Innovation (UACI), and Arizona Licensing Assistant Director, Tod McCauley, as they accomplished their start-up goals.

uPetsia is one of five teams named as winners of Purina’s 2022 Pet Care Innovation Prize, an honor for which 120 companies

from all over the globe applied. This award is meant to support and connect with early-stage pet care startups focused on innovating in the areas of pet health and wellness to address pet and pet owner needs.



- Full article from Tech Launch Arizona
<https://techlaunch.arizona.edu/news/2022/01/howl-good-dog-breath-uarizona-startup-wins-purina-pet-care-innovation-prize>

- More Information
<https://upetsia.com/>

Ravishankar Lab News

Amity University, Mumbai, India

Dr. Ravishankar and her team hosted Dr. A.W. Santosh Kumar, the Pro-Vice Chancellor of Amity University, Mumbai, India, on November 8, 2021, to discuss research collaborations between the two universities. A formal signing of the Memorandum of Understanding between the Amity University and the University of Arizona was done with Dr. Betsy Cantwell, Senior Vice-President for Research and Innovation, and Dr. Sangita Pawar, Vice President-Operations at the Office of Research, Innovation, and Impact.

GIDP Applied Biosciences Chair Appointment

Dr. Sadhana Ravishankar, was appointed as the new Chair of the Applied Biosciences - Graduate Interdisciplinary Program (GIDP) at the University of Arizona on January 24, 2022.

The Applied Biosciences (ABS) program at the University of Arizona (UA) is a Graduate Interdisciplinary Program (GIDP) under the Graduate College. ABS is a dedicated Master's program that awards a Professional Science Master's degree, and prepares students for careers in the biotechnology and health science industries. The ABS-PSM is organized into six semi-independent tracks which include Controlled Environment Agriculture, Diagnostic Laboratory Sciences, Industrial Microbial Biotechnology, Medical Microbiology and Immunology, Molecular and Cellular Biology and Sustainable Bioeconomy and Bioenergy.

Yuma, Arizona

Richard Park, (staff member) and Dr. Mark Witten traveled to Yuma on December 1, 2021 to meet with produce growers and managers at a desalinization plant to discuss research collaborations and opportunities.

Local Media

Wichner D. 2021. "Robots, lasers and more tech developed in Tucson get spotlight." Features research and technology developed in the S. Ravishankar Lab. Business Section, Arizona Daily Star. October 10, 2021.

Aquaculture Pathology Lab Updates

Shrimp Pathology Short Course - Virtual

The 30th session of "Shrimp Pathology Short Course" was conducted in a virtual mode on Dec 06-10, 2021. A total of 26 participants from 08 countries including the USA, Mexico, Ecuador, Guatemala, Norway, Indonesia, South Korea and Australia joined the virtual training.

OIE Twinning Project - Bogota, Columbia

Dr. Arun K. Dhar and Dr. Luis Fernando Aranguren Caro conducted a training on disease diagnostics in shrimp and fish in Nacional de Colombiano Diagnostico Veterinario Agropecuario-Laboratorio Nacional de Diagnóstico Veterinario (LNDV), Bogota, Colombia, as a part of an OIE Twinning Project of the World Organization for Animal Health (OIE, Paris, France). The twinning project focuses on building capabilities in fish and shrimp disease diagnostics in LNDV, Bogota, Colombia.



Participants in the OIE Twinning Project held in Bogota, Columbia with Dr. Arun K. Dhar (left image third from left; right image front row left) and Dr. Luis Fernando Aranguren Caro (left image second from left; right image back row left).



Dr. A.W. Santosh Kumar, the Pro-Vice Chancellor of Amity University, Mumbai, India (right) with Dr. Sadhana Ravishankar (second from right) and members of the Ravishankar laboratory.



Members of the University of Arizona and the Amity University following the signing of a formal Memorandum of Understanding regarding research collaborations between the two universities. Back row (l-r): Dr. Sangita Pawar, Vice President-Operations at the Office of Research, Innovation, and Impact, Dr. Sadhana Ravishankar, Professor, ACBS, and Dr. A.W. Santosh Kumar, the Pro-Vice Chancellor of Amity University, Mumbai, India. Front row: Dr. Betsy Cantwell, Senior Vice-President for Research and Innovation.

Grants

Sponsor: USDA NIFA

Title: Evaluation of Genomic Selection for Acute Hepatopancreatic Necrosis Disease Survival and Resistance in White Pacific Shrimp: Genomic Prediction and Genome-Wide Association Study
PI: **Arun K. Dhar** (Co-PI) with Dr. Breno Fragomeni (PI), University of Connecticut
Project amount: **\$590,000**

Sponsor: USDA NIFA

Title: A viral vector for an oral delivery of RNAi-based therapeutics in shrimp
PI: **Arun K. Dhar** (PI) and **Rod Russel R. Alenton** (Co-PI)
Project amount: **\$350,000**

Sponsor: California Department of Food and Agriculture

Title: Microbial Characterization of Irrigation Waters using Rapid, Inexpensive and Portable Next Generation Sequencing Technologies
PI: **Kerry K Cooper**
Project amount: \$322,942

Sponsor: United States Department of Defense

Title: Manipulating hepatic GABA production and release to affect changes in blood pressure
PI: **Benjamin J Renquist**
Project amount: \$307,000

(ACBS Grants & Pubs continued on 11)

Sponsor: United States Department of Agriculture

Title: Development of FSMA Validation and Verification System for Leafy Greens

PI: **Kerry K Cooper**

Project amount: \$242,960

Sponsor: United States Department of Agriculture

Title: Die-Off Rates of Escherichia Coli O157:H7 in Agricultural Soils

PI: **Kerry K Cooper**

Project amount: \$240,222

Sponsor: United States Department of Agriculture

Title: Real-Time Biosensor to Detect Foodborne Pathogens in Leafy Green Production

PI: **Sadhana Ravishankar**

Project amount: \$202,178

Sponsor: United States Department of Agriculture

Title: Guidelines for Safe Application of Composts in Leafy Greens Production

PI: **Sadhana Ravishankar**

Project amount: \$181,547

Sponsor: Centers for Disease Control and Prevention

Title: Conducting Integrated Infectious Disease and Public Health Research in Peru

PI: **Kerry K Cooper**

Project amount: \$52,591

Presentations and Symposia

Alshahrani S, Getchell K, Raygoza K, Bains K, Murell V, Brierley P, Porchas M, Patil B and **Ravishankar S**. 2021. A Comparison of Initial Background Microbiota on Surface of Melons Grown in Different Regions of the United States. Poster presented by Shouq Alshahrani at the Annual Food Safety Conference, Tucson, AZ. October 20, 2021.

Bains K, Rowlands D, Rao R and **Ravishankar S**. 2021. Biofilms: Significance in Food Processing and Control Strategies. Lightning talk presented by Kirat Bains at the Annual Food Safety Conference, Tucson, AZ, October 21, 2021.

Cirerol C and **Lopez G**. 2021. Understanding the prevalence and transmission of *Cyclospora cayetanensis* in Produce Growing Regions. Lightning talk presented by Cesily Cirerol at the Annual Food Safety Conference, Tucson, AZ. October 21, 2021.

Cirerol C, Notah A, Rodriguez D, Nguyen C, Jodie T, Kartoz J, Gould B, **Lopez G**. 2021. Determine the prevalence and transmission of *C. cayetanensis* in Lake Okeechobee, South Central, FL. Poster presented by Cesily Cirerol at the Annual Food Safety Conference, Tucson, AZ. October 20, 2021.

Goforth M, Obergh V, Cooper K. 2021. Bacterial Diversity of Different Melon Types Grown in Different Locations. Poster presented by Madison Goforth at the Annual Food Safety Conference, Tucson, AZ. October 20, 2021.

Greene EA. 2022. "Knowing What's Normal in Your Horse: a new extension resource" Tuba City, Kykotsmovi, Window Rock, and San Carlos, AZ. March 15 – 17, 2022.

Greene EA. 2022. "STEM in Agriculture" Arizona 4-H STEM Adult Experience, Yavapai County Extension Office. Prescott, AZ. March 26, 2022

Greene EA. 2022. "STEM in Agriculture" Arizona 4-H STEM Adult Experience, Blue Ridge High School. Pinetop, AZ. February 25, 2022.

Greene EA. 2022. "Arizona High Country Series - Horse". Webinar for horse owners, Navajo County Extension. February 3, 2022.

Greene EA and Arias J. 2022. San Carlos Apache Livestock/

Equine/Producer Resource Workshop. February 10, 2022.

Greene EA. 2021. "STEM in Agriculture" Arizona 4-H STEM Adult Experience, Maricopa County Extension Office. Phoenix, AZ. November 3, 2021.

Heiner C, Obergh V, Leal M, Mydosh J, Salsburg L, Park C, Cooper K. 2021. Survival of Salmonella in plant-based meat products and impact on the microbiome. Poster presented by Cassidy Heiner at the Annual Food Safety Conference, Tucson, AZ. October 20, 2021.

Landeros Rivas E, Benally K, Torres M, Lopez G. 2021. Prevalence of *Cyclospora cayetanensis* in irrigation water in the Southwestern region of the US. Poster presented by Eina Landros Rivas at the Annual Food Safety Conference, Tucson, AZ. October 20, 2021.

Mai HN, Aranguren Caro LF, Cruz-Flores R, Noble White B, and **Dhar AK**. 2022. Differentially Expressed Genes in Hepatopancreas of Acute Hepatopancreatic Necrosis Disease Tolerant and Susceptible Shrimp (*Penaeus vannamei*). Plant & Animal Genome Mapping Conference XXIX, San Diego, CA, January 08, 2022.

Mydosh J, Parker C, Cooper K. 2021. Phenotypic and Genotypic Comparisons of *Campylobacter jejuni* strains with different clinical outcomes. Poster presented by Jennifer Mydosh at the Annual Food Safety Conference, Tucson, AZ. October 20, 2021.

Obergh V, Goforth M, Brassill N, Scott Z, Dery J, Grean H, Smith B, Saber B, Singh A, Jebrini H, Hiener C, Pagen M, Sieckenius S, Rock C, Yemmireddy V, **Cooper K**. 2021. Assessing potential microbiome alterations due to sanitizer treatment of agricultural water. Lightning talk presented by Victoria Obergh at the Annual Food Safety Conference, Tucson, AZ. October 21, 2021.

Park R, Rao A, Rowlands D, Wei Q, Brierley P, Porchas M, Patil B and **Ravishankar S**. 2021. Why We Peel Melons: A Peek into the Prevalence of Foodborne Pathogens Among Field-Grown Melons in Arizona. Lightning talk presented by Richard Park at the Annual Food Safety Conference, Tucson, AZ. October 21, 2021.

Ravishankar S. 2021. "Scholarly Activities in Life Sciences: Effective Grant writing and Intellectual Property Protection for Innovation and Entrepreneurship". Presented to the students and scientists at the Center for Drug Discovery and Development- Sathyabama Institute of Science and Technology, India. September 27, 2021.

Ravishankar S. 2021. "Current Trends in Food Safety & Food Production". International Conference on "Novel Paradigms in Biotechnology-Bioengineering Interface: From Concepts to Reality" hosted by the Sathyabama Institute of Science and Technology, India, Indian Association of Applied Microbiologists, and California University of Science & Medicine. November 10, 2021.

Rodriguez D, Cirerol C, Notah A, Nguyen C, Kartoz J, Jodie T, Myron B, Lopez G. 2021. Understanding the prevalence and transmission of *Cyclospora cayetanensis* in Produce Growing Regions in Southwest and Mexico. Poster presented by Dominic Rodriguez at the Annual Food Safety Conference, Tucson, AZ. October 20, 2021.

Rowlands D, Raygoza K, Brierley P, Porchas M, Patil B and **Ravishankar S**. 2021. Attachment Strength of *Salmonella enterica* serovar Newport and *Listeria monocytogenes* on Melon Hybrids Grown in Five Different Regions of the United States. Poster presented by Kristina Raygoza at the Annual Food Safety Conference, Tucson, AZ. October 20, 2021.

(ACBS Grants & Pubs continued on 12)

Zhu L, Zierzghi H, Betancourt W, Gerba C, Bright K, Rock C and Ravishankar S. 2021. Isolation of Indicator and Foodborne Pathogenic Bacteria from Non-traditional Irrigation Water Sources in Arizona. Lightning talk presented by Libin Zhu at the Annual Food Safety Conference, Tucson, AZ. October 21, 2021.

Invited Lectures

Alenton RRR. 2021. “Functional analysis of gill-specific C-Type Lectin (MjGCTL) suggests a primitive form of mucosal immunity in shrimp”. Third International Symposium on The Control of Aquatic Animal Diseases (2021 CAAD), A Virtual Symposium held by the International Center for the Scientific Development of Shrimp Aquaculture, National Cheng Kung University. September 10, 2021.

Dhar AK. 2022. “Diseases of Shrimp”. Davis Thompson Foundation, Gurnee, Illinois, USA, January 18, 2022, <https://davisthompsonfoundation.org/>

Dhar AK. 2022. “Combining Histopathology and Genomics in the Discovery of New Pathogens in Shrimp”. A virtual conference on the ‘Application of Modern Biotechnological Tools for Management of Aquatic Genetic Resources’, Module 2: Aquatic Animal Disease and Biosecurity, organized by the Indian Council of Agricultural Research (ICAR) and Asia-Pacific Association of Agricultural Research Institutes, Lucknow, India, January 12, 2022.

Dhar AK. 2021. “Major Diseases in Shrimp: Biology & Diagnosis”, College of Fisheries Sciences, Pukyong National University, Busan, South Korea, November 23, 2021.

Dhar AK. 2021. “Diseases & Disease Management in Shrimp Aquaculture”, National Fisheries School, National Fisheries Institute (NFI), Washington DC, November 09, 2021.

Publications

Aranguren Caro LF, Mai HN, Marcos, Frances LA, Alenton RRR, Cruz-Flores R, and Dhar AK. 2021. Experimental reproduction of white feces syndrome in white leg shrimp, *Penaeus vannamei*. PLoS ONE 16(12): e0261289.

Dhar AK, Cruz-Flores R, Ramos J, Garfias M, and Lyons G. 2022. Assessing genetic relatedness of infectious hypodermal and haematopoietic necrosis virus (IHHNV) isolates recently detected in the US. Emerging Infectious Diseases, In Press.

Cruz-Flores R, Rodríguez MH, Flores JSOG, and Dhar AK. 2022. Formalin-fixed paraffin-embedded tissues for microbiome analysis in rainbow trout (*Oncorhynchus mykiss*). Journal of Microbiological Methods, 192:106389.

Dhar AK and Mai HN. (2021). Acute hepatopancreatic necrosis disease (AHPND) and hepatopancreatic microsporidiosis (HPM): Two threats to sustainable shrimp aquaculture In FA Aya, LD de la Peña, ND Salayo, and EA Tendencia (Eds.), Proceedings of the International Workshop on the Promotion of Sustainable Aquaculture, Aquatic Animal Health, and Resource Enhancement in Southeast Asia (pp. 200–216). Tigbauan, Iloilo, Philippines: Aquaculture Department, Southeast Asian Fisheries Development Center. <https://repository.seafdec.org.ph/handle/10862/6273>

Greene EA and Mastellar SL. 2022. Knowing What’s Normal for Your Horse. AZ Extension pub AZ1986-2022. <https://extension.arizona.edu/pubs/knowning-what-normal-your-horse>.

Greene EA and Thompson AB. 2022. ALIRT Bolo - Horse Disease: Equine Infectious Anemia (EIA). AZ Extension pub AZ1987-2022. <https://extension.arizona.edu/pubs/horse-disease-equine-infectious-anemia-eia>.

Greene EA and Thompson AB. 2022. ALIRT Bolo - Horse Disease: Strangles. AZ Extension pub AZ1988-2022. <https://extension.arizona.edu/pubs/horse-disease-strangles>.

Greene EA and Thompson AB. 2022. ALIRT Bolo - Horse Disease: West Nile Virus. AZ Extension pub AZ1985-2022. <https://extension.arizona.edu/pubs/horse-disease-west-nile-virus>.

Zhang C, Love M, McNamara C, Chi V, Woods A, Joseph S, **Schaefer D, Betzer D, Riggs M, Pui-Ying T, Van Voorhis W, and Arnold S.** 2021. Pharmacokinetics and pharmacodynamics of clofazimine for treatment of cryptosporidiosis. In press, Antimicrobial Agents Chemotherapy.

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Page 7 - Headshots provided by individuals
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ACBS Newsletter

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