That wise observation by Oliver Wendell Holmes, Jr., is as true today as it was when he said it early in the last century, and the College of Agriculture and Applied Sciences is involved in two essential, mind-stretching human experiences: connecting with other cultures and learning.

We are proud to be part of the nation’s land-grant system and serve the people of Utah, but our discoveries and opportunities for students reach worldwide. In CAAS, learning and discovery are not constrained by classroom walls, campus boundaries, the state line or even the country’s borders.

In this issue you’ll read about USU researchers helping to battle the Zika virus, a professor whose ideas have created a company that produces instruments used by scientists around the globe, a few of the programs that allow CAAS students to move forward with their studies while gaining life experience outside the United States and how a new agreement is helping CAAS provide educational opportunities in Mauritius. Not certain where that is? See page 16.

Connecting people with knowledge and opportunities is invaluable, and in a world that often seems simultaneously more connected and more divided, perhaps connecting people with other people also has value beyond measure.

Kenneth L. White
Dean, College of Agriculture and Applied Sciences; Vice President, Extension and Agriculture

CAAS Alumni Council President

Scott Fuhriman is looking forward to his term as the newly appointed president of the College of Agriculture and Applied Sciences’ Alumni Council.

“I’m excited for the opportunity to represent all the alumni of the College of Agriculture and Applied Sciences, past to present,” Fuhriman said. “The best parts of the college are the people. As a farmer, I get to associate with a wide group of people involved with the college, and it’s really rewarding.”

Scott attended Utah State University in the early 1970s. He studied agricultural systems and technology and thoroughly enjoyed his time at the university. Scott, along with his brother, Michael, took over the farm that has been in their family for 110 years in Pocatello Valley, Idaho. Scott and Michael have worked on the farm for decades and grow wheat, alfalfa and specialty seed crops.

In September 2005 Scott lost his only son, Dusty, in the tragic van accident that took the lives of eight students and one faculty member in the Agricultural Systems and Technology program. Scott chose to give back to the school and honor his son’s memory by taking the money he had saved to send Dusty to college and establishing an endowed scholarship in his name at USU. Scott attends the College of Agriculture and Applied Sciences’ Awards and Honors Banquet every year and meets the students who benefit from his scholarship and, like Dusty, exhibit strong ethics and hope for the future. In 2012, shortly after the loss of his father, N. Dean Fuhriman, Scott endowed scholarship in his name as well.

Scott said he is always impressed with those involved with the college.

“The students and alumni of the college stand out from the crowd,” he said. “CAAS graduates are good, hard workers who can show off their abilities in the workforce.”

As USU’s Alumnus of the Year in 2013, Scott was honored during the homecoming themed “Once an Aggie, Always an Aggie.” Scott’s generosity and involvement within the college are evidence that he is indeed, “Always an Aggie.”
Featured

11 USU RESEARCHERS IN THE HUNT FOR ZIKA VIRUS TREATMENTS
Scientists in the Department of Animal, Dairy and Veterinary Sciences are working to understand and identify treatments for Zika virus with support from the National Institutes of Health. Researchers in the department have also published the genome sequences of three strains of the virus, an important step on the road to developing treatments and vaccines.

12 AGGIES ABROAD
Learning, teaching and research in the college are not confined to the Logan campus or even the nation's borders. Students gain experiences abroad that shape their world views and careers, and one alumnus is using his vision and support to create more opportunities for students and faculty in his native Taiwan.

18 RETURN ON INVESTMENT
Professor Bruce Bugbee is honored this year with USU’s highest award for research. This accomplished plant scientist has also turned his proclivity for tinkering with electronics into a growing company that equips scientists around the world and makes “corporate tithing” one of its operating principles.

22 THE LAST WORD: STUFF YOU SHOULD KNOW
Professor Debra Spielmaker, believes that part of the “stuff” everyone should know is the value of agriculture in their lives. As the national director of the USDA-NIFA Agriculture in the Classroom Project she finds that deciding what people should know about food, clothing and shelter can be daunting, and also a privilege.

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The magazine is published by the dean’s office of the College of Agriculture and Applied Sciences and distributed free of charge to its alumni and friends.

Submit story ideas, comments and unsubscribe requests to Jean.Edwards@usu.edu or 4800 Old Main Hill, Logan, UT 84322-4800.

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2016 Graduates From THE COLLEGE OF AGRICULTURE AND APPLIED SCIENCES

TOTAL DEGREES EARNED 494

DOCTORAL DEGREES
ASSOCIATE’S DEGREES
CERTIFICATES
MASTER’S DEGREES
BACHELOR’S DEGREES

TOTAL BACHELOR’S DEGREES 330

ASTE - APPLIED SCIENCES, TECHNOLOGY AND EDUCATION
ADVS - ANIMAL, DAIRY AND VETERINARY SCIENCES
NDFS - NUTRITION, DIETETICS AND FOOD SCIENCES
APEC - APPLIED ECONOMICS
PSC - PLANTS, SOILS AND CLIMATE
LAEP - LANDSCAPE ARCHITECTURE AND ENVIRONMENTAL PLANNING
ITDS - INTERDISCIPLINARY STUDIES
GSA - GENERAL STUDIES IN AGRICULTURE
Jerry Poulsen joined his fellow graduates at the College of Agriculture and Applied Sciences commencement in May to receive his bachelor’s degree in residential landscape design and construction. The 82-year-old retired orthodontist had the distinction of being USU’s oldest graduate this year and distinguished himself as an excellent student as well.
USU AVIATION MAINTENANCE TEAM TAKES FIRST PLACE AT NATIONAL COMPETITION

BY SHELBY RUUD

Utah State University’s Aviation Maintenance Management program took first place at the 2016 Aerospace Maintenance Competition (AMC).

AMC is an international competition in which students, professionals and military teams compete in timed events. USU students Autumn Allinson, Chase Baune, Kendall Chapman, Stephen Colton and Justin Young travelled to Dallas for the event and took first place out of 22 school teams in the competition.

“This competition is all about teamwork and working in a high-pressure environment,” said Allinson, the team captain. “As a team, we were prepared for that.”

The competition was broken down into 25 timed events. Tasks included removing and replacing a starter from a turbine engine, answering questions about aviation history, extracting lost screws with a borescope and more. Every task or test was given a time limit, with possible penalties for not following directions, failing to adhere to industry practices or incorrect test responses. USU came out victorious with the lowest combined time among the schools. In addition, in the airspeed indicator troubleshooting event, the USU team took second place overall, coming out ahead of professional and military teams.

“This was a tremendous learning activity for the students,” said Chris Bracken, professional aviation practice instructor and the team’s faculty mentor. “They were able to use cutting-edge technology and work side-by-side with potential employers, who were obviously impressed as several of them made a point of inviting our students to apply for jobs. The USU students shone on the stage in front of major companies and made all of us proud to be Aggies.”

Last year, USU placed third in this competition. In an effort to better prepare students, Bracken created an elective class in which students perform timed activities and study a variety of aviation subjects. The five top-performing students in the class were selected to represent USU at the competition.

The team members each received a first place trophy and a bag of tools from Snap-on. Students were also involved in finding sponsors to help pay for travel to the competition and receive support from Gossner Foods, American Airlines and USU’s Department of Applied Sciences, Technology and Education.

To learn more about the Aerospace Maintenance Competition, visit http://tinyurl.com/AMCvideo. To learn more about the aviation program at USU, visit http://aste.usu.edu/aviation/.
Our Cows Are #1

By Kailcee Harrison

Dairy and Aggie Ice Cream are one and the same at Utah State University. Most ice cream fans, however, don’t connect the cows at the Caine Dairy Teaching and Research Center and the milk that goes into famous ice cream. Recently the Caine Dairy was ranked as the number one college dairy herd in the nation based on herd breed age average score by Holstein World magazine.

This classification scoring system, developed by the Holstein Association USA, is known as the official herd BAA (Breed Age Average) and shows dairymen how their herd stacks up against other registered Holstein herds in the industry. The magazine uses the scores to rank dairies by size and has a special category for college dairies around the country. Caine Dairy Manager, John Wallentine explained how BAA scores not only determine the quality of a dairy but also have a practical impact on management decisions.

“The average dairy cow will be given a score near 100 which is pretty standard for the industry,” Wallentine said. “We are continuing a tradition of breeding for a better cow. That takes a lot of work, we have to have our employees, the veterinarian, and our administrators all on board to see those scores increase.”

Though the score does not specifically take management practices into account, the care animals receive is pivotal to their success. Helping a cow reach her full genetic potential through nutrition, environmental and health management decisions pays off when it comes time to score cows.

The Caine Dairy is also a valuable tool for research and education purposes. USU students gain hands-on experience by handling animals, learning basic animal health and dairy herd health management practices. In addition, many students and faculty conduct research at the dairy.

Registering the entire herd and paying to participate in the classification program is an added expense for the dairy, but one that is well worth the investment according to Wallentine. When the dairy occasionally sells animals they are now more profitable because of their improved genetics and productivity.

“People within the industry talk, especially about USU’s dairy,” said Wallentine. “We are known for having top end genetics. This ranking shows that. It’s an achievement that we have been working towards for many years.”

For more about the dairy and Holstein World’s recognition, see The Herald Journal’s story online at http://tinyurl.com/bestcows.
Cultivate | Spring/Summer 2016

By Shelby Ruud

Campus Explorer, an online service that assists more than 50 million students a year with college planning, has named Utah State University the top school in the nation for students pursuing careers in agriculture-related fields. The website ranked colleges based on tuition prices, programs and ability to provide resources for agriculture majors. The ranking also cited USU’s ability to award more scholarships to agriculture students than any other agriculture program. This year, USU’s College of Agriculture and Applied Sciences awarded $461,888 in scholarships with 363 students receiving scholarship help.

Among other highly ranked schools were Cal Poly San Luis Obispo, Purdue University and Montana State University. Included in the rankings were tuition comparisons, with USU costs for resident tuition coming in $11,000 to $20,000 less per semester than the other top three schools.

According to Ken White, dean of the College of Agriculture and Applied Sciences, the college is proud to focus on preparing students for a variety of important careers while remaining affordable.

“The key to our college’s success comes from the value offered by an education here,” White said. “With a legacy of award-winning faculty, plenty of undergraduate research and a diverse range of academic offerings,

By Manda Perkins, RSG Communications, and Shelby Ruud

A good research mentor is highly engaged with student research, demonstrates personal and scientific integrity, provides constructive feedback when needed and inspires and motivates students throughout their academic career. It’s no small feat, especially when balanced with teaching and conducting their own research, but Abby Benninghoff embodies all of these traits and more while sharing her passion for science with her students.

Her exceptional efforts were recognized by the College of Agriculture and Applied Sciences last fall, and Benninghoff was subsequently named Utah State University’s Outstanding Graduate Mentor and honored at 2016 Commencement.

Since joining faculty in the Department of Animal, Dairy and Veterinary Sciences in 2010, Benninghoff has served as major advisor for three master’s degree students and two doctoral students, several of whom have continued their training in PhD or post-doctoral programs. Her service on 15 additional graduate advisory committees in her department, and in Departments of Nutrition, Dietetics and Food Sciences, Chemistry and Biochemistry, Math and Statistics and Biology, all indicate her mentorship is highly respected and sought after.

“Although Abby has only been at USU for six years, her nomination materials presented a compelling picture of her substantial contributions not only to her own students, but to other students in her department,” said Richard Inouye, associate vice president for research and associate dean of graduate studies. “Notably, she is also seen by her faculty colleagues, including those who are more senior than Abby, as an example of an excellent mentor, and an example that they seek to live up to."

Benninghoff’s research studies the connections between environment and gene function. Some of her students study how diet influences genes in the colon, and how affected genes influence cancer risk. They’ve found that the typical Western diet — energy dense and nutrient poor — when fed to rodents, causes cancer development to be much more aggressive.

“My students work as independently as possible because that’s how they learn best,” she said. “But I’m here in case they need help and my door is always open to them. I’m ready to work with them whenever they need me."

Valuing the opportunity to learn with her students, Benninghoff said she considers her colleagues.

“We laugh as much as we work,” she said. “We learn from each other, which is really exciting — I get to learn new things from the students I’m mentoring. I look at it as a team; we’re all together on the same team. Our pursuit, our goal is new knowledge and that team works best when there’s a good mentor-mentee relationship."

In letters of recommendation, Benninghoff’s students spoke of her dedication to foster such relationships. Stephany Perez Monsanto, a master’s student from 2011 to 2013, said Benninghoff is unique in her ability to motivate and inspire students through con-
it’s not surprising that our college continues to be nationally ranked."

The College of Agriculture and Applied Sciences is home to over 1,200 undergraduate students and seven departments that offer 72 degrees across a broad range of disciplines. The college continues to grow and is moving forward with plans to offer additional degrees.

To see the Campus Explorer rankings, visit tinyurl.com/USUraking.

Abby Benninghoff, USU’s Outstanding Graduate Mentor.

In brief

Dietetics Teams Up With Athletics by Shelby Ruud

The Department of Nutrition, Dietetics and Food Sciences has partnered with USU Athletics to provide a place where busy athletes can get nutritious pre- or post-workout snacks and important nutrition counseling.

The Aggie Fueling Station’s goals are to provide athletes with nutrition information and the food they need to complement the physical demands of training and give dietetics students hands-on experience in sports nutrition.

The station is stocked with appetizing foods that combine convenience and good nutrition. Student athletes choose from fresh fruits and vegetables, cheese, milk, chicken, yogurt, beef jerky, peanut butter, trail mixes and more.

Dietetics student at the station prepare fruits and vegetables, measure serving sizes and plan the daily special. They also answer nutrition questions from student athletes and give presentations about health and wellness to sports teams.

“It’s the ultimate win-win,” said Sheryl Aguilar, the research dietitian in charge of the station. “Our students are getting real-world experience and the student athletes are getting sound nutrition advice.

Natalie Norris, an alumna of the USU dietetics program, who also has a degree in exercise science and is a former All-American soccer player, will work in NDFS and athletics to connect the two programs. Aguilar said this connection is important because it allows students more opportunities in the growing field of sports nutrition, provides staffing to run the Aggie Fueling Station and educates the student athletes.

Abby Benninghoff, USU’s Outstanding Graduate Mentor.

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Abby Benninghoff, USU’s Outstanding Graduate Mentor.
Scientists at Utah State University have been recording and reporting daily weather observations for 125 years and the Utah Climate Center has been recognized in December by the National Weather Service with an Honored Institution Award for that consistent service and the vast amount of data it has generated.

Accurate weather forecasts are crucial to decisions that affect people, corporations, government entities and entire economies, and those forecasts are built on records of daily weather observations. Each time Utah Climate Center staffers gather information about specific details of the day’s weather they are adding more important data points to an unusually long record.

“Long records are very important to helping us understand climate and how things have changed over time,” said Randy Graham, meteorologist-in-charge at the National Weather Services’ Salt Lake City office. “Back in the day, this was about climatology and establishing our climate record. Now this data is going into numerical weather prediction models and helps improve our forecasts.”

Currently, daily observations are made and recorded by graduate student/Utah Climate Center employees Martin Schroeder or Boniface Fasu, and occasionally by center director and State Climatologist Robert Gillies. Their work is added to records that include more than 45,600 days-worth of observations. Fasu explained that each day they record daily maximum and minimum air temperatures, precipitation, soil temperatures at four different depths and a description of visibility distances and note whether it’s sunny, overcast, windy, raining or snowing. In fact, one of the challenges in documenting the weather is the weather.

“Reading instruments in a blizzard is really interesting,” Gillies said. “And once, when a strong inversion had built for several days, I drove past the entrance to one station twice because I couldn’t see where to turn off the road.”

Getting the readings isn’t just a matter of looking at a few gauges. Schroeder described how winter observations frequently include boiling water and transporting it in a Thermos to the station’s snow gauges. The climatologists use a known quantity of the hot water to melt snow collected in the gauge and then figure the difference to determine how much water the snow contains. Occasionally, if it’s snowing hard enough, it can be challenging to get the calculation right because snow keeps falling into the gauge.

Lisa Verzella, a National Weather Service meteorologist who coordinates the network of Utah’s volunteer observers, said although there are stations with automated sensors, people provide better records because they are familiar with the instruments they use and how they read them. In addition, when a severe weather event occurs and road crews and others need to know about current conditions, automated instruments may not “see” the activity because radar is blocked by mountains.

“But we can contact observers in an area and get a report of what’s really happening on the ground,” Verzella said.

Graham said data collected by observers is examined closely after a severe weather event, including information from the days and hours preceding it, to help develop better forecasting tools.
Scientists at Utah State University have done some of the first antiviral treatment trials in the United States, aimed at identifying and testing compounds for treating or preventing Zika virus infections. In addition, in July a team of USU researchers published the complete genome sequences of three important strains of Zika virus, providing scientists around the world with information that is vital for developing therapies and vaccines.

Under the direction of Associate Research Professor Justin Julander at USU’s Institute for Anti-Viral Research (IAR) in the Department of Animal, Dairy and Veterinary Sciences, and with funding from the National Institutes of Health, experiments with Zika virus have been underway at USU since December 2015 and are yielding results that may help researchers worldwide better understand and battle the virus.

Work at the IAR is being done in cell culture to determine whether some compounds that have shown promise in fighting related viruses – specifically, dengue and yellow fever – may be used to fight Zika. The most effective ones are being tested in animal models, a necessary step because understanding and fighting viruses is a complex undertaking that cannot be done solely in test tubes or petri dishes that have no physiology or immune system.

Julander said there are several challenges related to fighting Zika virus which is primarily spread by Aedes aegypti mosquitoes and can also be sexually transmitted. More than 80% of people who get the virus have no symptoms or develop only mild illness. Julander said key in fighting most viral infections is starting treatment while the body’s viral load is small.

“No one is going to go to the doctor because they got a mosquito bite,” Julander said. “So by the time someone feels symptoms the virus has had time to become established. Ideally we need a vaccine to protect against the virus and a way to treat the virus at an advanced stage.”

ADVS researchers, who are part of the Veterinary Diagnostics and Infectious Diseases division of the Utah Science, Technology and Research initiative (USTAR), went to work sequencing the Zika virus genome because that very basic information is an important part of developing a vaccine. It may also speed the process of drug discovery because it shows scientists how Zika is the same or different from other viruses, and allows them to begin with existing drugs that are known to be effective against similar viruses.

A troublesome trait of viruses is that they rely on a host’s cellular machinery to complete their lifecycle. Effective treatments must hit the virus and not damage the host’s cells. If the USU researchers have good results with treatments in cell culture and animal models it will be up to those who created the compound to conduct clinical trials with people.

It is possible, Julander said, that Zika virus has changed in a way that is giving it a new advantage in spreading more broadly and causing more problems. In the United States the Aedes aegypti mosquito is found only the southernmost areas. However, last year’s worldwide chikungunya virus outbreak occurred because another mosquito species that ranges farther north now carries the virus.

“The Institute for Antiviral Research tries to respond to important concerns and find ways to prevent or treat them,” Julander said. “That is our mission, our goal. And though the work we do takes time, we can be rapid responders to viral disease outbreaks.”
We live in a world increasingly connected by lightning-fast communication, open access to databases full of information and vast collections of photographs and videos of far-away places. But nothing provides the same experience as traveling to new places and seeing things with “new eyes” both abroad and when we return home. Add formal education to a journey and the experience can be life-changing.

Learning, teaching and research in the College of Agriculture and Applied Sciences are not confined to the Logan campus or even the state’s boundaries. Students and faculty go abroad for reasons as diverse as the college’s departments and students. A group of dietetics students and faculty members spent 10 days in Crete this spring where they learned about Greek farming, foraging, foodways and the health benefits of the Mediterranean diet. Students and faculty in Landscape Architecture and Environmental Planning have toured and studied in China and Germany. A recent USU agreement with Tskuba University in Japan allows students to study some agriculture courses there in English while paying USU tuition. But other agreements with several universities are continuing or just beginning to provide CAAS students with study abroad opportunities that fulfill requirements they need to graduate and the desire to learn about new places a people.

CAAS Associate Dean of Research DeeVon Bailey, who previously directed Utah State University’s Office of Global Engagement, said international programs aren’t simple to operate, but their value outweighs the extra effort they require.

“Everyone likes the idea of traveling for a few days or weeks, but actually making student exchanges work through differences in instruction, grading, language, expectations and culture is challenging,” Bailey said. “Even in England, where there is less of a language barrier, students experience many cultural differences and different approaches to education.”

Dillon Feuz, head of the Department of Applied Economics sees a myriad of benefits in students and faculty in working and studying abroad. “Depending on the job it can be a real advantage because seeing that you are willing to do something extra, step out and try new things, and that you didn’t just go abroad to take ‘fun’ classes, but were doing solid coursework in an accredited and respected program, can be what sets you apart from other job candidates.”

Some of the benefits are less tangible. “I’m a very concrete, applied science guy, but if we make ourselves more aware of other people and cultures and ideas, we become better workers and also better thinkers,” he said. “Universities don’t just teach people how to make more money on their alfalfa or write amazing code. We are here to teach people to think and broaden their perspectives. And it’s hard to measure the value, but when students come here from other countries and experience our culture we are building bridges. Maybe down the road these people become senior managers or government leaders and we’ve helped them gain a different perspective about America.”

Bailey added, “International travel and study help people gain a broader context for their beliefs and biases, and they build an understanding that people are essentially the same everywhere, but view the world through very different lenses.”

Among the places CAAS students can explore, study and evaluate their own lenses on the world are at Tsukuba University in Japan under an agreement with USU, and at the Royal Agricultural University in Cirencester, England, as part of a long-standing graduate degree program in international agribusiness. In addition, trailblazing programs in several disciplines are just being established at Taiwan National University in Taipei, and at National Chung Hsing University in Taichung.
International programs often begin with a good idea, a desire to connect people with opportunities and gathering the people who will make things happen. CAAS alumnus Don J. Wang is a man full of ideas and the drive to make things happen, especially if it connects and serves people in his native Taiwan and adopted United States. Wang, recipient of USU’s Distinguished Alumnus Award in 2011, is a pivotal figure in the college’s forging new ties with universities in Taiwan. In addition to giving generous scholarship support, Wang paved the way for CAAS Dean Ken White, Applied Economics Department Head Dillon Feuz and Associate Professor Simon Wang, to visit National Taiwan University and National Chung Hsing University and accompanied them, as did his wife Ming, while the USU faculty gave guest lectures, met with scientists there and discussed ideas for cooperative programs.

Simon Wang credits Don Wang (no relation) with making very promising professional connections possible and “showing us what powerful things one willing alumnus can do.”

It’s not the first time Don Wang has seen a need or an opportunity and made positive things happen. He earned a master’s degree at USU, started a business in Texas and did several different jobs before 1987 when he founded Metrobank in Houston. He founded the bank primarily to serve the financial needs of minority community members, and in 1989 founded the New Era Life Insurance Company and serves as its chairman.

Determined to see his vision for Aggies in Taiwan to become a reality, this spring Don and Ming Wang traveled to Logan with administrators and faculty from National Chung Hsing University (NCHU) and met with CAAS faculty and department heads to explore opportunities that will benefit students from both schools. Several ideas for exchanges are still on the drawing board and some programs with more obvious connections will send USU students to Taiwan as soon as Fall Semester 2016. For example, agribusiness courses at NCHU are taught in English and fit well with USU’s curriculum, making exchanges in that program a relatively simple option.

“They have an international agribusiness degree taught in English and it attracts students from other Asian countries and from Europe,” Feuz said. “They are committed to making it an international program. We will start student exchanges next spring. Differences in our academic calendars are a bit of a challenge, but we think we can work through that.”

He added that growth in Asian markets makes study in Taiwan an appealing prospect for students in economics and agribusiness. A couple of USU Applied Economics students will be paving the way in Taiwan beginning fall semester and food science Professor Conly Hansen will teach at NCHU next year.

“Agriculture in Taiwan isn’t like agriculture here,” Feuz said. “In fact, American agriculture is unique and the students from Taiwan will be able to study here to get a closer perspective on that. Of course, they grow crops that we don’t grow here, but from an economic standpoint the decisions producers and companies make are not very different. But there are also interesting marketing and policy differences.”

Natural resource economics and management are areas where it may seem the Intermountain West and an island nation in the Pacific have little in common. But NCHU has programs in natural resource management and regional planning that may also be of interest to USU students.

“We have a lot of land and sparse population, and Taiwan has limited land and very dense population,” Feuz said. “But we both have problems related to water scarcity and water quality and challenging decisions about uses for land that is suitable for agriculture.”

USU’s Department of Plants, Soils and Climate (PSC) has an agreement with National Central University’s Department of Atmospheric Studies that will allow USU undergraduates in climate science to take four core courses and several electives in a well-established department. In addition, PSC faculty are identifying courses in soils and plant science that will give students the opportunity to fill USU graduation requirements as they study in Taiwan. Δ
This year the Department of Applied Economics celebrates the 20th anniversary of the start of its very successful graduate program in collaboration with England’s Royal Agricultural University (RAU). Students in the program earn degrees from both universities, an MBA in food and agribusiness from the RAU and an MS in international agribusiness from USU. With an additional semester of coursework at USU, many also earn a master’s in applied economics.

CAAS Associate Dean of Research DeeVon Bailey said most of the approximately 100 people who have graduated from the program have had jobs and returned to school to do graduate work and take part in the unusual international opportunity.

“They are motivated to gain experiences that will help them rise to management positions and they see the benefit of earning the two degrees and gaining international experience,” Bailey said. “Another great thing is that the students that move through the program together become close friends. I could probably call any one of our graduates and they would know where their classmates are in the world.”

Students in the program, whether from the RAU or USU, begin their studies with fall semester in Logan, move on to classes in England for the spring term and then complete a team project that puts them to work solving real problems with European agribusinesses. Following that experience – and usually some personal travel – students complete their studies and theses at their home institutions. Bailey added that the RAU has strong connections with industry leaders in Europe and students frequently interact with visiting CEOs and others gain valuable experience working on the team projects.

Alumnus Caleb Bott, a native of Castle Dale, Utah, now leads a team of investigators in Aurora, Colorado who regulate livestock marketing nationwide. He credits the graduate program with being the chief factor that helped him launch his career.

“When I graduated in 2010, the job market was very slow,” he said. “I believe having a graduate degree from a foreign university made my resume stand out. My degree and experiences in England helped me get the job I have today – a career I thoroughly enjoy!”

Bott said studying with a group of individuals from Asia, Africa, South America, Europe and the United States exposed him to a range of different ideas and greatly enhanced his college experience. Though it took time to get accustomed to driving on the left side of the road, Bott and his wife Charlotte frequently traveled with their son Lincoln during their stay in England.

“The RAU is in one of the most beautiful places in England – the Cotswolds,” he said. “It is near Stonehenge, Stratford-upon-Avon and Oxford. Several times a week we toured castles, cathedrals, palaces, battlegrounds and beautiful cities that are rich in culture and history. It was truly amazing! Yes, I could have earned a graduate degree without going to England. However, I would have missed the opportunity to earn a graduate degree from the oldest English-speaking agricultural university in the world.”
Among the cultural differences to which students must adjust are contrasts in American and British higher education. Students in the U.S. are accustomed to coursework, quizzes, papers and multiple exams that are graded throughout the semester. In England though, students attend lectures, read and “sit” an extensive single exam that determines their grade.

Alumnus Magnus Rosenberger entered the program through the RAU, said the British system is much like what he was accustomed to in his native Germany and that having an “off day when exams take place can have serious consequences.”

Rosenberger said his choice to enroll in the RAU/USU International Food and Agribusiness program was determined by his career goals and because the course offered a unique opportunity to combine coursework in two different countries and a truly international experience.

“There were classmates from at least 20 different nations and it was a great experience to understand how different people are,” he said. “I very much appreciated the different skill sets of classmates and enjoyed getting constant feedback, for instance during the team project in Cirencester.”

Rosenberger lives in Munich and works at Triple Point Technology, an international software company focused on managing commodities, trading energy and mitigating risks. Among Rosenberger’s memories of his life in Logan is when professors invited him and a Chinese classmate to be their guests during the Thanksgiving holiday, “…a very generous and warm gesture which I remember very much,” he said. △
Residents and visitors to the island nation of Mauritius do not lack for beautiful vistas, turquoise water for diving and snorkeling, inviting beaches and natural beauty. They also benefit from many years of stable government and a growing financial sector. But the founders of a new school there are working to provide the people of Mauritius and its east African neighbors with educational opportunities that can prepare them to build careers and create businesses. And they’ll be doing it, in part, with curriculum and teaching support from their partners at USU.

The Department of Applied Economics’ (APEC) agribusiness and international agribusiness programs will be the first to offer four-year degrees from an American-style university in Mauritius under a partnership agreement signed in April by USU President Stan Albrecht and President Spalding Jugganaikloo of The American Campus (TAC).

Students enrolled at TAC will study the same curriculum as students in USU’s agribusiness or international agribusiness program at any of its campuses. The courses will be taught in English and USU faculty will work with faculty at TAC and evaluate instruction and testing. Students at TAC may also have USU online courses and there will be opportunities for faculty to teach in Mauritius with fellowships or on sabbatical. Other USU degree programs may follow as TAC continues to grow.

Jugganaikloo said although there are universities in Mauritius, many people leave their homes to attend schools in the U.S. and Europe and then tend to stay there for employment. His goal has long been to make education accessible in Mauritius for people there and from other Sub-Saharan African countries. Jugganaikloo said the USU degrees are a great fit for TAC for several reasons.

“The degrees have an added entrepreneurial element that is a very big piece of what we are trying to accomplish in Mauritius,” Jugganaikloo said. “These degrees are very important to our goals. Our first recruitment efforts for this program will be in Nigeria and Ghana where 35% of the economy is agricultural.”

That agricultural economy there is built on small farms run by individuals and families. The business skills and entrepreneurial mindset that are core to USU’s agribusiness programs will be important to students in the growing African middle class as they will be prepared to make positive impacts and create jobs in their home countries.

APEC Department Head Dillon Feuz said the program in Mauritius is different from other international programs the department is engaged in because it won’t involve USU students, but will provide important benefits for people in many East African nations.

“We really want to help students there be more competitive,” Feuz said. “We will be helping faculty teach marketing strategies and how to make a little more on products, not negotiating huge trade treaties. We have experience teaching people to be successful with small, diversified agricultural operations and creating value-added products. It’s very similar to the Extension work we do helping small farms in rural Utah to be successful.”

“We really think this is the right program and the right faculty for this partnership,” said USU Provost Noelle Cockett. “We are excited about this partnership, and it fits with our land-grant mission to provide excellent and accessible education.”

Returning to his home country to provide opportunities for others has been on Jugganaikloo’s mind and heart since he left Mauritius 24 years ago to get an education in the United States, an endeavor that is not possible for many people there.

“I’m a firm believer that the best thing we can do for developing areas of the world is to give people access to education in programs that prepare people to work,” Jugganaikloo said. “Education brings economic development, peace and long-term opportunities. Our goal is to train future business and political leaders in the region.”
Above: Flic en Flac, Mauritius. Photo by Brian Warnick.
Left: USU President Stan Albrecht and President Spalding Jugganak-loo of The American Campus sign the agreement. Photo by Dennis Hinkamp.
Many great ideas and corporate cultures emanate from that magical portal we call “the garage”; Apple, Microsoft, Dell, Nike, Disney, Google and others. In Logan, we can add Apogee Instruments to this list. The scientific instrument company emerged from the backyard garage of Bruce Bugbee, professor in USU’s Department of Plants, Soils and Climate.

Bugbee’s long history of inventive thinking contributed to his being named the recipient of the 2016 D. Wynne Thorne Research Award, the university’s highest research recognition given annually to one outstanding faculty researcher. Candidates are nominated by academic peers at USU for the significance of their research and a final selection is made after their lifetime accomplishments are reviewed by national and international experts in their discipline.

Bugbee’s research has focused on growing plants in chambers with electric lights where all aspects of the environment can be controlled. He is probably best known for his work with NASA, where his work includes developing a unique dwarf wheat for the International Space Station. Named USU-Apogee, the short-stature wheat also became the inspiration for the name of his small business.

“The first products weren’t even made in the garage,” he said. “I started tinkering around in the kitchen connecting light diodes to hand-held volt meters. These meters were needed by research scientists to measure the unique wavelengths of light for photosynthesis. I figured out a way to make a meter for 20% of the cost of the other meters on the market.

“I started selling them to fellow plant scientists by word of mouth,” Bugbee said. “In 1997 I got an order for 70 meters and had to expand to the garage.”

How did a plant scientist start dabbling in electronics?

“I grew up near Paynesville, Minnesota, population 1,742 and the biggest town for 30 miles”, he said. “The roads were gravel and the cars were fragile. When stuff breaks you learn to fix it.”

He had forgotten about his early interest in electronics until after his daughter was born and his mother sent the electric trainset he had as a kid.

“I opened the package and studied the homemade switches and electromagnets that I had added to the trainset as a teenager. It was a déjà vu moment.”

More tinkering ensued and the meters became more rugged and accurate. More people were hired. When the company reached six employees the city told him that he had exceeded the limit for a home business. About this time Campbell Scientific convinced him to sell them part of the company.

“We had a product that was in demand but people couldn’t count on a garage-based business being around next year,” Bugbee said. “Teaming up with Campbell Scientific gave us a high level of customer trust and facilitated collaboration on research and development.”
After 10 character-building years, Apogee Instruments moved out of the garage in 2007 to a location next to Campbell Scientific, 721 West 1800 North in Logan, Utah. The name has proven to be an accurate reflection of the company’s trajectory since one of “apogee’s” two meanings is the highest point or culmination in the development of something. The second definition is a nod to Bugbee’s space-related research: the point in the orbit of a satellite that is furthest from the Earth. The product line has expanded to more than a dozen types of sensors and an international reputation. Apogee now has over 20 employees, nearly all Utah State University graduates.

Apogee has followed Campbell Scientific’s concept of “corporate tithing”, which means giving 10 percent of profits to non-profit organizations. Much of Apogee’s tithing has gone to USU in the form of scholarships, an invited speaker fund, and development of the Environmental Observatory on campus near the Taggart Student Center.

“There is tremendous value in starting a business in a university town because you have access to so many talented students,” Bugbee said. “It seems natural to give back to the source.”

Apogee just celebrated its 20th anniversary with a 10,000-square-foot addition. Since Bugbee has worked at USU since 1981 he is sometimes asked why he doesn’t just retire and run Apogee.

“My passion is to create knowledge,” he said. “Apogee does a lot of research, but the goal is to create products. The university gives me the opportunity to transfer my passion to the youth of the nation.

“Students have been a continuous source of inspiration,” he added. “I have had the good fortune to mentor over 30 graduate students at USU; seven of them are now on the faculty of other universities. They are all ambassadors for Utah State. In the end, I remember the students I worked with more than the instruments we built or the papers we wrote. For me, teaching is the highest form of understanding.” Δ
From a young age I wanted to go to vet school and when I went to Utah State I had a wonderful professor, Dr. Wayne Binns, who took me under his wing. He helped me pursue my dreams and prepared me for vet school at Colorado A&M where I became a veterinarian. My experience at Utah State and in vet school led me to the development of implanting artificial hearts in calves, which took me all over the world meeting all kinds of people.

“I GIVE BECAUSE I AM PASSIONATE ABOUT EDUCATION AND WANT TO HELP OTHERS HAVE THE SAME OPPORTUNITIES I WAS AFFORDED.”

— Don and Joyce Olsen

“GIVING IS A KEY TO HAPPINESS. MY MOTHER, A WIDOW OF LIMITED MEANS, TAUGHT ME THAT EVEN A SMALL CONTRIBUTION CAN MAKE A DIFFERENCE IN THE LIFE OF SOMEONE ELSE. THEREFORE, I GIVE TO BE HAPPY!”

— Marilyn Blakeley

USU has played a central role in our lives. Our fathers, both of us, and each of our children graduated from USU. DeeVon has been a faculty member in the College of Agriculture and Applied Sciences for the past 33 years. When our children were students at USU, they received scholarships, were employed by USU, and met their spouses who were also USU students.

“ASSISTING OTHER STUDENTS TO HAVE SIMILAR OPPORTUNITIES AND EXPERIENCES IS A WAY TO EXPRESS OUR APPRECIATION FOR ALL USU HAS DONE FOR OUR FAMILY.”

— DeeVon and Marilyn Bailey
When Steve Ford transferred to Utah State University from Brigham Young University-Idaho it was strictly to finish his education. While at BYU-I he had completed an associate’s degree, and at USU he completed a minor in business management and bachelor’s degree in landscape architecture and environmental planning (LAEP).

“I spent as little time as possible on campus so I could work, support my family and spend time with my wife,” Ford said. “The only people I associated with were the other 25 people in my program.”

Ford’s service on the CAAS Alumni Council has been notable for a few reasons: He didn’t spend time socializing as a student and making a lot of alumni “connections”, he graduated when the LAEP department was in a different college on campus and his road from degree to career was not a smooth one. After completing his degree in landscape architecture in spring of 2008, the economy crashed and Ford lost his job. He was unemployed for 9 months after graduating.

“During that time I tried to keep a positive attitude, but I was frustrated that my bachelor’s in landscape architecture seemed to be pretty much a piece of paper,” Ford said.

During that time he tried out numerous other career paths including computer science, pre-dental classes and even began studying to become a counselor. When a friend told him about a job opening at A&D Landscaping for a designer, Ford applied on a whim.

“I had pretty much washed my hands of the whole design thing, but I got the job,” he said. “I have been at A&D ever since and its been fantastic.”

Stories like Ford’s are not uncommon for many students upon completing their degrees. Perseverance, creativity and the ability to be life-long learners are just a few of the qualities Aggies acquire at USU. △
Occasionally I listen to the podcast channel, “Stuff You Should Know.” There is just something intriguing about what others think I should know. As I browse the variety of podcasts I ask myself,

“Do I really need to know this?” Or quip, “I already know this.” I have a great deal of experience helping others with what I think they should know. I have spent my entire career educating others (specifically teachers and their students) about something I think they should know about; agriculture.

When I introduce myself to others as a professor who teaches graduate students and conducts research in the area of agricultural literacy there is a pause as they process the words agriculture and literacy. I see the puzzled look and immediately respond with, “You know, understanding about how we get our food, clothing and shelter.”

I recently worked with other professionals and researchers on a definition of agricultural literacy. We eventually agreed that “a person who understands and can communicate the source and value of agriculture as it affects our quality of life” would be considered agriculturally literate. Seems simple enough, until you “un-pack” the word “understands” as it relates to “agriculture.” Now you are in the realm of what people should know.
Where to start? Deciding what should be known about agriculture – everything related to our food, clothing, and shelter – is somewhat daunting and at the same time a tremendous privilege.

Most of us have a story to tell concerning agricultural literacy (although we may not have used this term), and it usually starts out like this: “I have a friend who did not know that… (something you think they should know. I'll finish the sentence) brown eggs are the same as white eggs, flowers become fruit, cheese is made of milk, and my personal favorite, cows have to have a calf each year to produce milk. That last one was news to my son-in-law at the age of 30! These are very basic food related concepts, but there are more complex concepts that need to be understood as consumers have questions about the production and processing of their food, clothing, and shelter. Their questions are usually related to concepts in science which oftentimes have social implications. The National Agricultural Literacy Outcomes divide these concepts into themes: Agriculture and the Environment; Plants and Animals for Food, Fiber and Energy; Food, Health, and Lifestyle; Science, Technology, Engineering and Math; Culture, Society, Economy and Geography. Each concept within the themes has been written into measurable outcomes, making it possible to say, “This is what you should know.”

People learn about agriculture in classrooms, at farm field days, farmers markets, online and at dinner parties. My research focuses on elementary and secondary educators and their students. I am interested in what they know and how or where they acquire their knowledge and attitudes about agriculture. There are many ways to assess these constructs but when a participant in an agricultural literacy event says, “I will never look at a loaf of bread the same every again” they have been transformed, and that the type of learning is retained and hopefully transferred to other interactions they have with agriculture. I was once asked by a reporter, why agricultural literacy matters. I responded that in so many ways agriculture affects everyone’s quality of life and our environment. Seems like something you should know.
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