



ANFSScratchings

THE NEWSLETTER OF THE DEPARTMENT OF ANIMAL AND FOOD SCIENCES

Spring 2019

Issue 12



Message from the Chair

Hello to our alumni and friends!

The Department of Animal and Food Sciences had a very productive year in 2018. In last year's newsletter we mentioned several retirements; this year, we are excited to introduce two new faculty members, Dr. Aditya Dutta and Dr. Yihang Li. Both bring unique research and teaching expertise to the department, and you can learn more about them in this newsletter.

We continue to improve our facilities and production capabilities. The Charles A. and Patricia Genuardi Food Innovation Laboratory is nearing completion in a renovated portion of Worrlow Hall. This facility will include areas for pasteurization, cheese processing, additional ice cream processing, and a food science test kitchen. Cheese processing is expected to begin in March, and the first products will likely be cheddar and gouda. Ice cream processing will begin at a later time. The food science test kitchen is nearly complete. Students in food science courses will use the state-of-the-art facility for their laboratory coursework. As described later in this newsletter, small-scale beer brewing is another activity students will be able to participate in. As mentioned in the last edition, the rest of Worrlow Hall will also undergo major renovation. Work is now slated to begin this summer and to be completed at the end of 2020.

In June of this year I will have served as chair for five years, and will step down to return to the faculty. It is amazing how quickly this time has passed especially since it all started as an "interim chair" position. We are currently searching for a new chairperson and are excited about the new direction he or she will bring to the department.

We hope you will continue to stay in touch with us in 2019. If you have any updates or news, please contact Anita Stofa at astofa@udel.edu, and she will connect you with the right person.



Limin Kung, Jr.

In this Issue

- ❖ Message from the Chair... 1
- ❖ Food Safety Research Addresses Critical Produce Safety Questions 2
- ❖ Dr. Courtney Campbell Kicks Off Inaugural Homecoming Veterinary Alumni Event 3
- ❖ Veterinary Internships with Alumni 3
- ❖ Welcome to Our New Faculty and Staff Members 4
- ❖ Students Enjoy Goat Yoga. . 5
- ❖ Nanobrewery. 5
- ❖ Awards and Recognitions. . 6
- ❖ News from Students and Their Organizations 7
- ❖ Thank You to Donors 8

Department of Animal and Food Sciences
531 S. College Avenue | Newark, DE 19716
Phone: 302-831-2524
<http://canr.udel.edu/anfs/>

Edited by Rolf Joerger and Tanya Gressley

Food Safety Research Addresses Critical Produce Safety Questions in Midst of Outbreaks

Over the past six months, food safety and foodborne illness received considerable media attention. While the United States has a safe food supply, it has been difficult to avoid thinking about the potential risks, especially following the announcement on November 20, when the CDC stated that consumers should not eat Romaine lettuce. Overnight nearly all Romaine lettuce was removed from store shelves along with some other leafy greens. This announcement came on the eve of the Thanksgiving holiday, a time when we all adore time with food and family. This outbreak was associated with contaminated product produced in the Central Coastal growing region of California that was linked with illnesses from October 2018

to January 2019. One might say that 2018 was a bad year regarding foodborne illness. The CDC listed 24 multi-state outbreaks that were investigated in 2018, including the large outbreak that occurred from March to June associated with Romaine lettuce produced in Yuma, AZ that resulted in 210 cases across 36 states, 96 hospitalizations, and five deaths. It is very rare in multi-state outbreaks like these for the source of contamination to be detected; however, contamination from water or manure were suspected in both Romaine outbreaks.

Within ANFS, we take these issues seriously, discussing them in courses across the curricula dealing with issues of public health, food safety, and One Health. Undergraduate students (**Alyssa Kelly, Quinn Riley, Jacob Mallon**), graduate students (**Brienna Anderson, Shani Craighead,**

Samantha Gartley, Alexis Omar) and a post-doctoral research fellow (**Pushpinder Kaur Litt**) are working with **Dr. Kali Kniel** on research to reduce the risk of microbial contamination of leafy greens and other raw agricultural commodities. Two large federally-funded projects



Samantha Gartley, Pushpinder Litt and Alyssa Kelly prepare plots in a field trial to measure bacterial survival and persistence.

function to inform current FDA policy targeted to address food safety needs, including application and use of biological soil amendments of animal origin and transfer of foodborne pathogens to crops. These studies include testing locally-sourced manures for *Salmonella* and disease-causing, shiga-toxigenic *E. coli*, assessing survival and persistence of bacteria in field trials and assessing risk for bacterial transfer to crops. Research studies are conducted in the laboratory and in the fields surrounding Townsend Hall. Our findings suggest that the type of soil amendment used in the field affects bacterial survival along with transfer to the crop. Recommendations from these studies regarding application of soil amendments 120 days prior to harvest can reduce risk of crop contamination. Students share their data directly with FDA scientists, growers in Delmarva, and scientific communities. 🐦

Dr. Courtney Campbell Kicks Off Inaugural Homecoming Veterinary Alumni Event

Current students joined alumni and veterinarians in Townsend Hall during UD's Homecoming Weekend at the inaugural Pre-Vet Alumni and Delaware Veterinary Practitioners Reception. While most of the guests hailed from the mid-Atlantic, the evening's keynote speaker, **Dr. Courtney Campbell**, DVM (BS, 2001), traveled all the way from California

for the occasion. The former Blue Hen is currently a surgical associate at VetSurg, a veterinary specialty surgical center. He enjoys focusing on minimally invasive surgeries like arthroscopies for joints and laparoscopies within the abdomen,



Dr. Courtney Campbell was a co-host of *Pet Talk*, the first talk show of its kind on Nat Geo Wild.

which are not yet a common practice in the veterinary world. He also has a strong media presence and has appeared on *Live with Kelly* and *The Doctors*, hosted the National Geographic show *Pet Talk* and made regular trips down the 101 Freeway to Los Angeles for media appearances.

"Focus on your passion and commitment first.

But, integrate your hobbies and other things that you enjoy as a part of your career," Campbell advised UD students. "A lot of people focus on ancillary things and forget about their passion. Do it in reverse." 🐦

Veterinary Internships with Alumni

At our inaugural Homecoming Veterinary Practitioners Reception (see article above), **Dr. Monica Sterk**, DVM, (BS, 2013) expressed an interest in hosting an undergraduate intern during winter session 2019. We paired her with **Jordyn Stevens** (BS, 2020) who was looking for a veterinary experience near her home. They both found working together rewarding at Veterinary Emergency Group in Nanuet, NY.

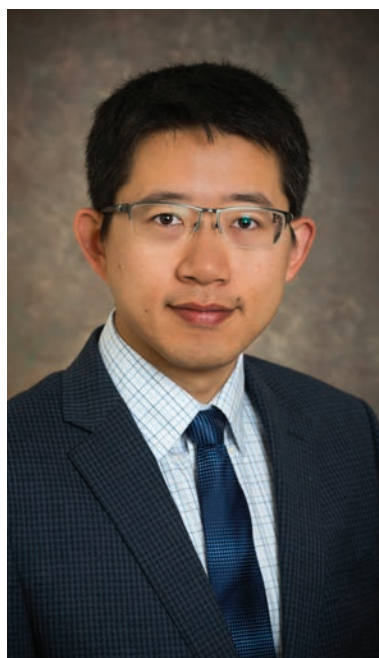
Are you a veterinary alumni that would be willing to host a current student over winter session or summer for a paid or unpaid internship? For our students, winter session is a great time for shadowing a veterinarian and it is a shorter commitment for the host veterinarian. If you are willing to host a student for a shadowing opportunity or as a paid or unpaid intern, please reach out Dr. Griffiths at lesa@udel.edu and provide her with the details and we will make the opportunities known to our students. 🐦



Alumna Dr. Monica Sterk (left) hosts Jordyn Stevens (right) during a winter 2019 veterinary internship.

Welcome to Our New Faculty and Staff Members

Dr. Yihang Li is a new Assistant Professor in ANFS. Dr. Li received his Bachelor and Master of Science degrees in Animal Science/Animal Nutrition from China Agricultural University. Dr. Li focused his research on early postnatal nutrition and bone development in piglets during his Ph.D. project at North Carolina State University and continued his research on gut health by using an early life stress model in pigs during his postdoctoral



training in the Gastrointestinal Stress Biology Laboratory at Michigan State University. His research centered on the nutrient transport physiology and barrier function of the pig intestine, by using the Ussing chamber technique. With this technique, researchers can learn about the response of the intestinal epithelium to nutrients and

bioactive molecules in real time. The technique is able to reveal dynamic interactions of the microorganisms living in the gut with nerve cells and cells of the intestinal immune system as well as their response to hormones.

Understanding how the intestinal system develops, is regulated, senses and transports nutrients, and regenerates is important for finding new ways to raise productive and healthy animals. Besides continuing his research on the pig model, Dr. Li will take advantage of the poultry research facilities at UD to expand his research to study intestinal development in chick embryos. His research goal is to expand our knowledge on how nutritional interventions and physiological stress impact early gut development and their immediate or long-term benefits to gut health. Ultimately, this type of research can lead to reduced animal production costs, and also contribute to knowledge relevant to human gut health.

Dr. Aditya Dutta joined our Department as an Assistant Professor in September. He arrived from Columbia University in New York, NY where he was a postdoctoral research scientist at the Herbert Irving Comprehensive Cancer Center. Dr. Dutta received his Ph.D. from Syracuse University in Syracuse, NY, M.S. in Biotechnology



from the Indian Institute of Technology Bombay in Mumbai, India, and B.S. (Honors) in Biochemistry from the University of Delhi in New Delhi, India. His research career to date has spanned investigation of stress responses in the soil bacterium, *Bacillus subtilis*, mechanisms of plant defense response in the model plant, *Arabidopsis* in response to the plant pathogenic bacterium, *Pseudomonas syringae*, and identification of metabolic drivers of prostate cancer initiation. His work has been published in high impact journals like Science and funded by the National Institutes of Health.

Dr. Dutta brings a unique perspective to the department given his broad training and expertise. Research in the Dutta laboratory is focused on understanding the mechanistic basis of cellular response to oxidative stress in both normal and diseased states, and the role of the microbiome (the population of microorganisms present at a site) in this process. In particular, the laboratory studies mitochondria-mediated mechanisms involved in development and maintenance of reproductive organ systems. The laboratory utilizes state-of-the-art transcriptomic, proteomic, and metabolomic approaches to interrogate chicken models, mouse models, and human samples. The work aims to improve reproductive efficiency in chickens, and identify and define drivers of ovarian cancer initiation in the human context.

Dr. Dutta is teaching Veterinary Biochemistry in the spring and Animal Physiology in the fall.



Anita Stofa has joined ANFS as an Administrative Assistant III. Anita was previously with the College of Earth, Ocean, and Environment at the University of Delaware and is a UD graduate (B.S. in Business Administration and Marketing).

Zachary Longenecker was hired as Poultry Farm Assistant II after **Sam Reynolds** transferred to a position with Grounds Services. 🐦



PVAB sophomore Bri Trust de-stresses with goat yoga.

Students Enjoy Goat Yoga

As a way to de-stress and interact with a different species of animals than those on UD's farm, student organizations hosted goat yoga on multiple occasions during the fall semester. Goat yoga is just like normal yoga—except it is held within a pen of goats that were brought to UD's farm for the events. In addition to serving as fundraising opportunities for clubs, students enrolled in ANFS 100: Animals and Human Culture were given the opportunity to attend the event for extra credit. 🐐

Nanobrewery

This summer starts our nanobrewery's fourth year operating out of the Newton Building. The operation is run as a joint venture between **Dr. Dallas Hoover** (ANFS) and **Dr. Nicole Donofrio** (PLSC). We continue with a maximum capacity of ½ barrel per batch (that's 15½ gallons), but have added desirable pieces of equipment each year to improve our quality and diversity of brewed

products. We hope to have two student interns in the brewery this summer preparing different types of ales and lagers for our first beer-making workshop that will be offered to the public August 19 to 20. We also hope to expand our network to involve more of the local craft breweries that have recently sprung-up in the area. 🍷



Food Science senior Sam Hete is shown connecting the tubing to an electrical pump to start the lautering process for a recent batch of pale ale.



Shown are pelleted hops commonly used in brewing; with the on-campus Petit Hop Field ready to produce a bountiful harvest next season Blue Hen beers will soon feature its own Blue Hen hops.

Awards and Recognitions

Cheryl Bush, Extension Agent in Food Science and Nutrition, was named by Today's Dietitian magazine as one of the "TD10" – one of the top ten registered dietitians recognized annually. These individuals, who work in a variety of careers, have a common desire to help improve the health and wellness of others. Cheryl and her colleagues across the country are being recognized for making an impact on the lives of the people they serve.



Michael Babak (left) with Dr. Bruce Stewart-Brown, senior vice president of food safety and quality live operations at Perdue Farms.

Michael Babak, Ph.D. student in **Dr. Behnam Abasht's** lab, was the 2018 recipient of the American Association of Avian Pathologists' Reed Rumsey Award for Basic Research in poultry diseases. The awards ceremony

took place in Denver, CO (July 16) during the 2018 AVMA Convention. He also won the student poster award at the National Breeder's Roundtable held in St. Louis, MO (May 17 to 18, 2018) and is a current recipient of a CANR Unique Strength Ph.D. Dissertation Fellowship in the area of genetics and genomics.

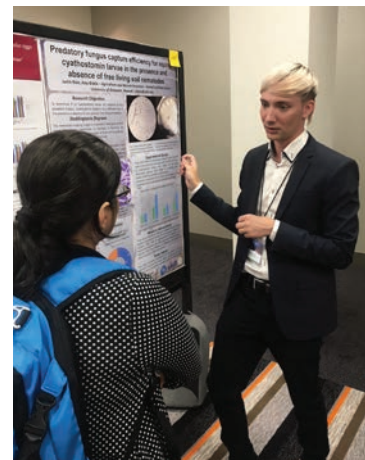


Nick Egan, MS student in **Dr. Mark Parcells'** lab, was awarded second place for his presentation on "The Role of Polycomb Repressive Complex Proteins in Marek's Disease Virus Latency and Lymphomagenesis"

at the 12th International Symposium on Marek's Disease and Avian Herpesviruses in Yangzhou, China. He was awarded with a plaque and \$1,000. Nick graduated with a M.S. degree in August and moved to a Ph.D. program at the University of Houston.



Justin Blair, M.S. student in **Dr. Amy Biddle's** lab, was awarded second place in the student poster competition for his work, "Predatory fungus capture efficiency for equid cyathostomin larvae in the presence and absence of free-living soil nematodes" at the 63rd American Association of Veterinary Parasitologists meeting July 14 to 17 in Denver, CO.



Mr. Robert Alphin and **Mr. Dan Hougentogler** took nine undergraduate students to the International Production and Processing Expo and the US Poultry College Student Career Program in Atlanta, GA in February 2019. Their travel was made possible by a generous grant by the U.S. Poultry and Egg Harold E. Ford Foundation.



Undergraduate students attending the IPPE and U.S. Poultry College Student Career Program in Atlanta were, from left to right, Holly Anderson, Emily Calanza, Ashley Gouge, Anna Lia Sullivan, Gabriella Castillo, Nicholas Lintner, Marcella Mancini, Alyanna Privetera and Monika Farmer, accompanied by Robert Alphin and Hanna Patey from Mountaire Farms.

News from Students and Their Organizations

2018 was quite the adventure for the **Animal Science Club**. As in past years, members attended the Northeast Student Affiliate (NESA) a competition held at Rutgers University. The competition included livestock judging, a quiz bowl, and paper presentations. Two quiz bowl teams placed fifth and tenth, with another member placing eighth in overall paper presentations, both incredible achievements. In February 2019, NESA was held at the University of Delaware; the club was excited to host for the first time in decades. Each semester, members volunteered at Cook Farms, UD's Webb Farm, and the House Rabbit Society. The club also visited



Animal Science club E-board. Back row from left: Matt Bott, Jenna Deal and Katie Brooks. Front row from left: Shane Cronin, MaKayla Musgrove and Sami Kosin.

multiple different national zoos and aquariums to receive behind-the-scenes tours from the head veterinarians. Speakers included domestic and exotic animal veterinarians, DNREC officials, and rescue animal volunteer coordinators. At Ag Day, the club showcased animals raised at the University with tables for the public offering information. In the fall, the club participated in the college's annual Fall Fest, allowing students and the children of faculty and staff to create origami animals. Social bonds have grown between members through PAWS De-Stress events, Cowtown Rodeo, bonfires, and a holiday party at the home of the club's advisor, **Dr. Lesa Griffiths**. 2018 was a fruitful year for club members, and the club looks forward to a productive 2019!

In 2018, the members of the **Food Science Club** tasted their way through many activities that deepened their understanding of the food industry. To name just a few of the highlights, the year started off with a visit from representatives of TIC Gums in March. The representatives talked to the club about their roles in the food industry and the internships they have available for students. Of course, the meeting was completed with a pizza dinner and a taste test of one of TIC Gum's products! In April, the club participated in the Food Science College Bowl hosted by the University of Maryland. This competition involves a fast trivia style game in which students answer questions related to food science. The spring



From left to right, President Elizabeth Hodson, Freshman Outreach Chair Stephanie Pappas and IFT Chair Bridget Suhr highlight Food Science Club at Activities Night.

semester finished out with the annual BBQ stand at Ag Day that the club uses to raise funds to support club activities. The fall semester began with a fun, lighthearted meeting to welcome new members and to taste different food products that represented current food trends. Some of the most interesting food products included Sweet Heat Skittles and Pumpkin Spice Twinkies. In October, the club hosted guest speaker and UD alumnus Phil Bafundo, a QC/QA Technologist at Tastepoint by IFF. The meeting was accompanied by Capriotti's sandwiches and a presentation from Bafundo on food safety and flavors. Bafundo also offered club members insight into what it is like to work in quality control. The club finished the year with its annual activity of baking sweet potato pies during the holidays for the Newark Food Bank. 🐦



Department of Animal & Food Sciences
531 S. College Avenue
Newark, DE 19716

The Department of Animal and Food Sciences is pleased to recognize alumni, faculty, staff, parents, students, organizations and friends who supported the department and the UD Creamery during calendar year 2018. The following listing includes donors who designated gifts to the ANFS Department from January 1 through December 31, 2018.

Russell N. Abel	Shae L. Chico	Shane D. Harper and Sophie Drossman Harper	Brian S. Ladman and Alison Loupos Ladman	Donna Keen Reyes and Victor Reyes	Katherine Johnson Swanson and David E. Swanson
American Association of Avian Pathologists	John P. Cogan	Hunter N. Harrow	Katherine E. LaDow	William E. and Lucy J. Robbins	Sharon Lacey Swartout
Wayne I. Anderson	MacKenzie Conklin	Maureen Hermes-Kane	Diana Laporte	Lynn N. Rudman	HeiTung Tai
Arkion Life Sciences	Keith R. Crasnick and Judith M. Tishkoff	Jeffrey and Camille Hoover	Ryan J. Lawrence and Sarah Pierson Lawrence	Andrea Schaaf	Margaret E. and Brian B. Tallman
Amy Estey Becker and Karl D. Becker	Madeline Curry	Heather-Ann Herrick Howard	Jia Liu	David P. and Aruni Shapiro	The Rite Bite, LLC
Stephen D. and Victoria F. Benson	Rita W. Devine	Jacob L. Hunt	Sarah R. Mainardi-Wilds	Melinda C. Shaw	Joseph and Laura Thornton
Aline Beylerian	DuPont Industrial Biosciences	Deovy and Rosemary P. Jaico	Milos Markis	Adrienne Hagelstein Shearer and Andrew L. Shearer	Valerie Horner Vallely
Elwood D. Black and Margorie Anderson Black	Louisa Patnovic Emerick	Lalith H. Jayawickrama	Helena T. Martin	Sheila Skilling	Diane M. Venninger
Elizabeth L. Bornemann	Fidelity Charitable Gift Fund	Rolf D. and Melissa S. Joerger	Sarah E. Meding	Amy J. Smagala	Virginia Tech Foundation, Inc.
Jose and Maribeth Bossbaly	Scott P. Fifield	Johnson & Johnson Family of Cos.	Herbert I. Moelis	O. Sue Snider	Lauren N. Weems
Cheryl D. and Edwin J. Bush	Denise Goheen	Jones-Hamilton Co.	Bernard D. Murphy	Raymond R. and Maureen T. Stankiewicz	Sherri Williams
Francesca McBride Carter	Corey Goldstein and Jill Kreitman	Carole Lynch Jorgensen	Alfred L. Pennesi and Candice L. Hoffman	State Street Foundation	Wenyi Yin
Patrick T. Carter	Tanya F. Gressley	Michele M. Karpovich and Ronald R. Staib	Stephanie E. Raible	Michelle F. Styles	Meaghan M. Young
	Susan Bobb Hardman	Evelyn Kennedy	Phil Ratliff	Michael and Denise Stypinski	Ruolin Zhang