



# ANFS *Scratchings*

THE NEWSLETTER OF THE DEPARTMENT OF ANIMAL AND FOOD SCIENCES

Winter 2016

Issue 9



## Message from the Chair

Perhaps you recall that in last year's newsletter I wrote that we were planning a national search for a permanent chair. Our plans changed and it was decided to hold off on the search, so I am continuing to serve the department as interim chair. In this capacity, I was thrilled to introduce two new faculty members, Dr. Ryan Arsenault and Dr. Amy Biddle, to the department this summer. As you will learn in the next pages, both bring tremendous strengths in teaching and research to our department.

Our faculty, staff, and students continue to do exceptional work and some of their accomplishments are highlighted in this issue. One of our many strengths is avian disease research, and this work was critical in helping to control the avian influenza outbreak last year. Two of the articles in this issue document our recent work related to avian influenza as well as the poultry disease research conducted in the newly renovated Lasher Laboratory.

We are grateful for our generous donors whose contributions allow us to continually improve our program. From renovating animal houses to supporting study abroad programs, our donors make a real impact on the services we provide.

We connected with many of you during Alumni Weekend 2015 and hope to see even more of you in 2016. In the meantime we are always excited to learn about the important things you are doing. If you have any updates or news to share with us we would love to hear from you! Please contact Becky at [bgeorge@udel.edu](mailto:bgeorge@udel.edu) and she will make sure to get you in touch with the right person.

Limin Kung, Jr.

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Edited by Rolf Joerger and Tanya Gressley

## Welcome to our New Faculty and Staff Members

**Dr. Ryan Arsenault** joined our Department as an Assistant Professor in July. Previously, Dr. Arsenault was a post-doctoral scientist with the United States Department of Agriculture's Agricultural Research Service (USDA-ARS) in College Station, Texas. Dr. Arsenault received his B.Sc. (2006) and Ph.D. (2012) in biochemistry from the University of Saskatchewan,



Canada. He conducted his research at the well-known Vaccine and Infectious Disease Organization – International Vaccine Centre (VIDO-InterVac). There his research centered on the development of the species-specific kinome peptide array, a novel research tool in animal science. With this technique, researchers can learn about the presence and activity of enzymes

in the cell called kinases (all the kinases in an organism form its kinome). These enzymes add phosphate groups to proteins and are important for many aspects of a cell's functioning. Dr. Arsenault's research at UD centers on kinomics and gut health across food-animal species, and includes the study of how an animal's diet affects its immune system, how pathogens interact with the animal or human host and alternatives to antibiotics in animal husbandry. Dr. Arsenault has designed a new course for Spring 2016 entitled "One Health: Zoonotic and Emerging Diseases." The One Health concept, spearheaded by veterinary and animal scientists, considers environmental, animal and human health as an integrated whole, working to predict and prevent, rather than simply treat, zoonotic and emerging disease outbreaks. In addition, he is currently developing a course, with **Dr. Amy Biddle**, on the gut microbiome (all the microorganisms that inhabit a human's or an animal's gut) to be offered in Fall 2016. Learning about the gut microbiome is important since it is now known that these microorganisms are important to many aspects of animal and human health.

**Dr. Amy S. Biddle** joined the Department as an Assistant Professor of Equine Science in July. She grew up in 4-H and the New England horse show circuit. As an adult, she was drawn to dressage and combined training, trail riding, and horsemanship, and served as a mentor for 4-H and FFA horse judging teams. Dr. Biddle received her doctorate in Microbiology from the

University of Massachusetts, Amherst with research to characterize lactate-utilizing bacteria in horses that could be helpful in preventing the digestive disruption that leads to colic. From this work, several strains will be evaluated as potential probiotics at UD.

The Biddle Lab will explore the relationships between the activities of microbes in the equine gut and metabolic diseases such as colic, laminitis, Equine Metabolic Syndrome, and Cushing's Disease. In addition to the Equine Microbiome Project (see below), other projects involve strongyle parasites and their resistance to dewormers.

Dr. Biddle is thrilled to be a driving force behind the growth and expansion of the Equine Science minor at UD with plans to add new courses and provide more direct equine experiences. She and **Dr. Annie Renzetti** have put together a Winter-term study abroad course for 2017 focusing on horses and management practices in Spain. Through these expanded opportunities, she hopes to convince students from such fields as business, computer science, engineering, and journalism, as well as animal



Dr. Biddle (left) and undergraduate researchers (from left) Barbara Hahn, Justin Berg, Brian Chambers and Hailey Seigel

science, that the equine industry offers opportunities to combine a passion for horses with diverse and lucrative career paths.

In October, the Biddle Lab launched the Equine Microbiome Project, an effort to collect fecal samples and health history data from horses across the country. With Crowdfunding support from 37 donors, she has raised over \$6,000 and sent out almost 70 kits to horse owners from California to Maine. Undergraduate researchers **Hailey Siegel, Brian Chambers, Maryn**

**Jordan, Jessica Spleen, Justin Berg, and Barbara Hahn** have sent out kits, organized samples and extracted DNA for the identification of the organisms in the samples through DNA sequencing. Dr. Biddle hopes to have results ready before the start of the Spring semester. For more information, and to join the project, please go to: <https://udel.givecorps.com/projects/5849-equine->



[microbiome-project](https://www.facebook.com/UDequinemicrobiomeproject); <https://www.facebook.com/UDequinemicrobiomeproject>.

**Becky George** has joined our department as the new Assistant to the Chair. Becky was previously an accountant in the Deputy Provost's Office. She is the Business Administrator for our department and responsible for all financial aspects including sponsored research programs.

**Ozlem Batan** is a new Administrative Assistant responsible for human resources-related activities. Ozlem came to us from UD's Human Resources Office.

## Update on Dr. Samm

Note: **Dr. Paul H. Sammelwitz** began in our department in Fall 1959 and retired in Spring 2000

Since my retirement, I have been asked numerous times "What do you miss the most?" My answer is always the same. I have missed the association with students. I greatly appreciated the many kind and thoughtful words that were conveyed in the notes and messages that I received following my retirement.

"What have you done to keep yourself busy since retirement?", you ask. Early on, my wife and I did some traveling. We took several Elderhostel (now Road Scholar) trips in the U.S. and abroad. We visited Portugal, Scotland, Ireland and England. During a trip to Germany we experienced the 2010 Oberammergau festivities. We continued to ride our bikes for some time even going on a Bike & Barge trip to France winding up in Paris.

I am afraid our cycling and skiing days are over. We moved to a very pleasant retirement community, Jenner's Pond, in 2011, which enables us to keep as active as we wish. I enjoy my time in the wood shop and singing in a Harmony group with about 40 voices. I am scheduled for a second right knee replacement. The first one lasted over 19 years, so this should be the last one. I would love to hear from any of my former students. [psamm@udel.edu](mailto:psamm@udel.edu)



Dr. Paul Sammelwitz and his wife, Diane, standing in front of their home in Newark

## Poultry Farm Renovation Gift from the Rosenbergers

A generous gift of \$30,000 from **Drs. Jack and Sandy Rosenberger** along with matching funds from **CANR Dean Mark Rieger** provided much needed facility upgrades to the UD Poultry Farm. The renovations included new roofs and interior improvements such as new ceilings and doors in the North and South Block Houses and the Poultry Isolation Unit which also received new floors and lighting. All of these facilities are used for poultry disease research and outreach. After retiring from UD, the Rosenbergers started AviServe, LLC. Located in Newark, AviServe provides laboratory and consulting services to the poultry and allied industries. The Rosenbergers continue to do collaborative research with several faculty in the Department.

## Study Abroad Gift from Mr. Stuart Grant

**Dr. Lesa Griffiths** and a near record number of 39 students went to New Zealand to study abroad during the Winter 2016 session. A generous gift from Mr. Stuart Grant allowed Dr. Griffiths to accommodate more students than can normally be taken.

## The Avian Biosciences Center Effort to Combat Avian Influenza

The ANFS Department has a long and rich history in the field of avian infectious diseases. Our faculty have discovered many new poultry viruses, studied the disease they cause, and developed vaccines to control them. These efforts have advanced poultry health locally and throughout the world, thereby benefitting farmers, production companies, and consumers. As part of this effort, the Avian Biosciences Center (ABC) was created at UD to train students, perform basic and applied research, and importantly, transfer new knowledge to the larger avian science community. We



Session during the Emergency Poultry Disease Response workshop

also work closely with the United States Department of Agriculture (USDA), the Departments of Agriculture in Delaware and Maryland, and the Delaware Department of Natural Resources and Environmental Control (DNREC). Our University of Delaware

Poultry Health System (UDPHS), the poultry disease diagnostic arm of the ABC, is a member of USDA's National Animal Health Laboratory Network that specializes in surveillance for diseases such as avian influenza in poultry and wild birds. Since the early 2000s, the UDPHS has screened over twenty thousand samples from Delaware and Maryland poultry and wild birds.

**Dr. Jack Gelb**, Director of ABC, and researchers and diagnosticians including **Professor Bob Alphin**, **Extension Agent William Brown**, **Dr. Eric Benson**, **Daniel Hougantogler**, **Dr. Brian Ladman**, and retired scientist **George Malone** have made significant contributions in the control of avian flu. In 2004, UD's Lasher Laboratory in Georgetown was the first diagnostic facility in the U.S. to use real time reverse transcription polymerase chain reaction for the diagnosis of avian influenza in poultry. Between 2009 and 2015 the USDA-supported ABC Emergency Poultry Disease Certification course has trained 121 participants from 64 countries. A new certificate program, Veterinary Diagnostic Laboratory Quality Assurance, will begin in 2016 to prepare labs to respond to avian flu and other disease outbreaks. In 2015, over 500 participants took part in web-based training sessions on topics including On Farm Biosecurity, Guidelines for Depopulation, and Foam Depopulation. Beginning in 2016, a new study will evaluate the efficacy of new avian influenza vaccines.

## Lasher Laboratory Reopening

The newly renovated Lasher Laboratory located at UD's Elbert N. and Ann V. Carvel Research and Education Center in Georgetown, DE reopened in April 2015. The avian diagnostic, disease and research facility helps in the early detection of avian diseases that have the potential to devastate the state's poultry industry. The guests attending the reopening event included U.S. Sen. Tom Carper and Delaware Secretary of Agriculture Ed Kee. Kee said that he and Gov. Jack Markell were thrilled that the state, through the



U.S. Sen. Tom Carper tours the newly renovated Lasher Laboratory.

legislature, made the \$4 million commitment to ensure that Lasher is outfitted with the latest facilities and equipment to protect the Delaware poultry industry. Kee stressed that research at the Lasher Lab and at the Allen Lab (on the Newark campus) helps keep the chickens healthy and allows farmers to make a profit. **Dr. Jack Gelb**

mentioned in his remarks that Delaware has a powerful system that connects the University's research and extension work with the State's poultry industry and that facilitates the control of poultry diseases.

## Brownie Farm Tour

Brownie Troop 41377 from West Grove, PA visited the UD farm in May. This event gave the group of eight- and nine-year-old girls a wonderful series of engaging activities. The girls stopped by the horse facility and eagerly petted Vendetta, an Arabian horse at UD's Webb Farm.



**Dr. Mark Parcells**, professor in our department, introduced the girls to our different lines of chickens and the girls got up close and personal with our diverse chicken breeds including our Fightin' Blue Hens. The girls also collected some eggs from a layer study currently winding up in our pilot layer facility. **Dr. Lesa Griffiths**, professor in our department, hosted the visit to the sheep barn where the lambs were a major attraction. **Richard Morris**, dairy herd manager, showed the troop our milking parlor and

gave some of the girls hands-on experience in how to prepare a cow for milking and actually collect the milk. **Dr. Tanya Gressley** and graduate students **Amanda Barnard**, **Stephanie Polukis**, and undergrad **Stephanie Gauta** (B.S. 2015) talked about our dairy herd and nutritional studies. They each had the opportunity to pet and interact with one of our calves. They even got to reach into the rumen of one of our research animals. A fun, smelly and exciting time was had by all.



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## Exploration Day 2015

High School students spent a day exploring our programs and discussing possible careers. Students interested in poultry/animal/veterinary science were



able to learn how a veterinarian diagnoses chicken diseases, how chickens were domesticated and how modern chickens evolved. A tour of the Allen Lab with its bird flu lab and animal facilities was also on the

agenda as was a demonstration of a computerized chicken house.

Students interested in food science experimented with molecular gastronomy and nanotechnology, taste tested and made ice cream in the UD Creamery, learned about food packaging and, together with the students in the poultry/animal/veterinary science group, went through the process of a foodborne illness outbreak investigation. At the end of the day, the High School students and their parents were able to enjoy the ice cream the students had made in the morning.



## Awards and Recognitions

**Dr. Larry Cogburn**, alum **Chris Resnyk**, and their colleagues in France recently published a paper in PLOS One demonstrating that adipose tissue may actually be an important organ that contributes to novel endocrine signaling, which involves the blood clotting mechanism, and the synthesis or export of fatty acids.



**Dr. Lesa Griffiths** has been named the next T.A. Baker Professor in the College of Agriculture and Natural Resources, succeeding retiring Plant and Soil Sciences professor **Dr. Tom Sims**. Dr. Griffiths was unanimously selected for the TA Baker Professorship which recognizes clear and substantial evidence of impact in teaching, research or extension.



**Dr. Kali Kniel** has been awarded the 2015 International Association for Food Protection (IAFP) Elmer Marth Educator Award, which recognizes an outstanding educator who serves their university in a teaching and research capacity for dedicated and exceptional contributions to the profession. Kniel is one of the youngest professors ever to win the award, which is the highest honor IAFP can bestow on a faculty member. Dr. Kniel also was the 2015 recipient of the CANR Outstanding Teaching and Advising Award.



Award-winning faculty member Kali Kniel (left) with Sarah Markland, who recently received her doctorate and had Kniel as her adviser.

**Dr. Changqing Wu** was awarded a grant "SusChEM: BPA Replacement with Non-Toxic Biobased Monomers" by the National Science Foundation. Her group will evaluate the toxicity and safety of BPA Biobased Replacement developed by collaborators in Chemical and Biomolecular Engineering at UD. Her group is also working with the USDA ARS Eastern Regional Research Center to study novel antimicrobial compounds.



**Bridget Aylward**, Master's degree student in **Dr. Robert Dyer's** lab, was awarded first place for a presentation in a graduate student competition sponsored by the American Dairy Science Association and the American

Society of Animal Science in Orlando, Florida. The idea for her project, characterizing populations of immune cells in bovine fat, came from studies of humans in which diet-related obesity causes those immune cells to assume a more inflammatory phenotype.



**Chan Ho Jang**, Ph.D. student in **Dr. Changqing Wu's** lab, was awarded a Professional Development Award to attend the 2015 Experimental Biology Annual meeting. He presented a research project on molecular targets of soy food intake on prevention of prostate cancer.



**Chuhan (Fiona) Liu**, a graduate student in the laboratory of Dr. Haiqiang Chen, won 1st place in the poster competition "Nonthermal Processing" at the annual meeting of the Institute of Food Technologists (IFT) with her poster "Application of water-assisted ultraviolet light processing on the inactivation of murine norovirus on blueberries".



**Sarah Markland** (Ph.D. 2015) was the 2015 recipient of the William J. Benton Graduate Student Award. Dr. Markland completed her Ph.D. degree in the laboratory of **Dr. Kali Kniel**.



**Qing Wang**, (Ph.D. 2015), received an IFT "Feeding Tomorrow General Graduate Student Scholarship" while a doctoral student in Dr. Kali Kniel's laboratory. Mary Forrest (Food Science senior) won the "IFT Past President Scholarship".



**Brittney Andersen** (B.S. 2015) and **Amy Cherico**, a junior majoring in PVAB, participated in an internship at the University of Pennsylvania's Department of Clinical Studies-New Bolton Center studying sows—adult female pigs—to see if the pigs could be trained to do simple tasks. Anderson explained that the internship expanded the knowledge gained from taking the swine production class taught by Dr. Lesa Griffiths.



Food Science graduates **Danielle DaGrosa** and **Taylor Jaffe** (B.S. 2015) were two of four UD students selected for an all-expenses-paid trip made possible by the Produce Marketing Association (PMA) Foundation to the PMA Tech Knowledge conference in Monterey, California. The students, accompanied by Dr. Kali

Kniel, explored career opportunities, technology and innovations in the produce industry.



**Dr. Mary Denigan-Macauley** (B.S. 1988) was awarded a CANR Distinguished Alumni Award in November 2015. Dr. Denigan-Macauley, assistant director at the Government Accountability Office (GAO) in Washington, D.C., was recognized for her work to shape legislation and public policy in key areas including agroterrorism.

### Weber Stibolt

(Food Science senior) received a scholarship for food safety auditing from the Food Marketing Institute Foundation and was given the opportunity to travel to the Safe Quality Food Conference in Indianapolis. After graduating, Stibolt wants to go into quality assurance or a food safety job to help manufacturers make sure they are producing safe, quality food.



## News from Students and their Organizations

2015 began with success for the **Animal Science Club** after they sent about 20 students to Penn State for the yearly Northeast Student Affiliate (NESA) competition. Each team did



Animal Science Club students compete at NESA

very well in the quiz bowl, livestock judging, and paper presentation competitions. The club is currently preparing to send their members to UConn this February for NESA 2016! One of the biggest highlights from 2015 was the record breaking totals of over \$700 made at Ag Day with the addition of new activities, including an animal nutrition and veterinary clinic activity. The club has also continuously volunteered at various locations, such as Steve Cook's, the Delaware SPCA, and UD's



Students and community members "operate" on stuffed patients during Ag Day

own Webb farm! Animal Science Club has also raised money for PAWS for People through their monthly De-Stress events. Students love coming to pet the dogs, especially during finals week! The upcoming spring semester is sure to be equally as exciting with even more volunteer opportunities!

2015 has been a busy one for the **Food Science Club**. In April we worked our food stand at the annual UD Ag Day selling burgers and hot dogs, and held

IFT's College Bowl here on UD's campus where we placed 2nd against the top Colleges recognized for Food Science. In the fall, like we do every year, we baked over 100 pumpkin pies for the Newark Food Bank during Thanksgiving! We also toured Yard's Brewery and won the annual Ag Olympics this year! Over the entire year we hosted visitors from food companies who



Food Science Club members at the Ag Carnival. Pictured are clockwise: Mary Forrest, Allison Ni, Ryan Brish, Luke Gargiso and Matthew Bogdan (front)

discussed internship opportunities and informed us about their company's products and technologies. We learned a lot! It was an exciting year and we look forward to an even better 2016!

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The Department of Animal and Food Sciences is pleased to recognize alumni, faculty, staff, parents, students, organizations and friends who supported the department during calendar year 2015. The following listing includes donors who made gifts to support designations within the ANFS Department from January 1, 2015 through December 31, 2015.

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