



DEPARTMENT OF  
ANIMAL &  
AVIAN SCIENCES

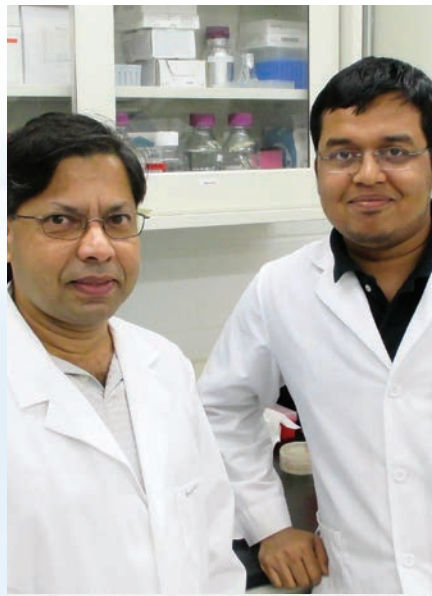
FALL 2014



*Dr. Curry Woods.*

### MINI GRANT FOR REPRODUCTIVE RESEARCH

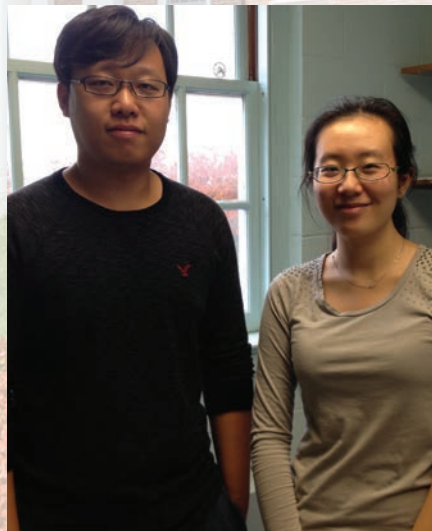
Dr. Curry Woods was awarded \$20,000 by NIFA-USDA for his research: “Teleost spermatozoal transcriptomes: requisite foundation for functional genomics, sperm quality and male fertility.” This grant will allow Dr. Woods to sequence and evaluate sperm transcriptome profiles from male striped bass with observed differences in fertilization rate. This research will be used to increase the reproductive efficacy of captive brood stocks, important to the aquaculture industry, by identification of superior males prior to spawning.



*Dr. Debabrata Biswas, Serajus Salaheen.*

### NORTHEAST SARE GRADUATE STUDENT GRANT

Serajus Salaheen, graduate student in Dr. Debabrata Biswas’s lab, was awarded 2014 Northeast SARE Graduate Student grant in the amount of \$14,983 for his research proposal entitled, “Reduction of environmental risks and improving livestock productivity in Mixed Crop- Livestock Systems with cheap byproducts of berry fruits.”



*Yang Qu and Sai Yuan.*

### INTERNATIONAL TEACHING FELLOWS

Grad students Sai Yuan in Dr. Kim’s lab and Yang Qu in Dr. Moyes’ lab have been selected as 2014-2015 TLTC-Graduate School International Teaching Fellows.



*Marie Iwaniuk, Tricia Rowlison and Megan Brown*

### ASGSA GRANTS FOR GRADS 2014 WINNERS

Marie Iwaniuk, a graduate student in Dr. Erdman’s laboratory, Megan Brown, a graduate student in Dr. Keef-er’s laboratory, and Tricia Rowlison, a graduate student in Dr. Ottinger’s laboratory, have each been awarded funding through the Animal Sciences Graduate Student Association “Grants for Grads” program. The program was established by ASGSA to allow its members gain experience in applying for and reviewing grants. The grant funding provides support for Marie to attend and present at the Joint Annual Meeting of the American Dairy Science Association, Megan to attend the Smithsonian-Mason’s School of Conservation Course: Statistics for Ecology and Conservation Biology, and Tricia to attend and present at the 41st Annual Conference of the International Embryo Transfer Society.

### GRAD STUDENT FEATURED IN GSD NEWSLETTER

Marie Iwaniuk, graduate student in Dr. Rich Erdman’s lab, was honored in the American Dairy Science Association’s Graduate Student Division newsletter in a Student Spotlight.



*Kiera Finucane, Cassidy Schirmer, Ian Doody, Julia Doody, Courtney Hoff, Anne Davis.*

### MARYLAND 4-H DAIRY JUDGING TEAM GOES ABROAD

In June, the Maryland 4-H Dairy Judging team of Ian Doody, Julia Doody, Courtney Hoff, and Cassidy Schirmer along with coach Anne Davis and Kiera Finucane, the department's Coordinator of Dairy-Beef Extension Activities, had the opportunity to travel to Scotland, England and Ireland as part of an international dairy judging experience. The group reached their \$35,000 fundraising goal in May, thanks to generous help from organizations, farmers, and companies.

Traveling through the United Kingdom and Ireland afforded two judging contest opportunities as well as countless farm visits. "It is hard to pick just one thing from the amazing whirlwind trip spanning three countries. I really enjoyed having the chance to see first-hand how various dairy farms are successfully operated in other countries. I don't think anything can top the experience of being able to judge dairy in a white lab coat in Scotland or winning our division in Ireland," said Cassidy Schirmer. More photos and information about the trip are available on their blog at <http://marylanddairyjudging2008.blogspot.com/2014/07/photos-galore.html>



*Dr. Rachel Dennis.*

### DR. DENNIS JOINS ANSC

Joining the faculty in the Department of Animal & Avian Sciences at the University of Maryland felt like coming home in more ways than one for Rachel Dennis.

A native of Virginia, Dennis received her master's degree from the ANSC Department at UMD in 2004 and has fond memories of visiting her grandparents who raised broiler chickens on Maryland's Eastern Shore. Now, as an assistant professor for ANSC, Dennis will be conducting research addressing issues of poultry production and well-being.

Her research also focuses on behavioral neurophysiology and understanding the mechanisms of neural plasticity and the impacts on behavior. Prior to coming to Maryland, Dennis worked with the USDA Livestock Behavior Research Unit in West Lafayette, Indiana. Just last month, she successfully climbed Mount Kilimanjaro with her dog and training partner, Parker.



*Dr. Ed Orlando.*

### DR. ORLANDO AWARDED USGS/NIWR GRANT

Dr. Ed Orlando was awarded \$238,000 for his grant proposal entitled "Environmental Concentrations and Exposure Effects of Environmental Gestagens on a Sentinel Teleost Fish (2014MD321G)" from the 2014 U.S. Geological Survey/National Institutes For Water Resources (USGS/NIWR) as part of their National Competitive Grant Program.

### MORRIS ANIMAL FOUNDATION GRANT

Dr. Orlando was also awarded a grant from the Morris Animal Foundation (MAF) for \$124,968 for the three year period of September 2014 – August 2017. MAF is the largest nonprofit foundation dedicated to funding research studies to protect, treat and cure animals. Dr. Orlando's proposal is entitled, "Environmental gestagen exposure effects on wildlife: reproductive toxicity and potential remediation."

# \$1.6 MILLION TO FIGHT FLU IN PIGS

Dr. Bhanu Telugu has been awarded a \$1.6 million from the Agriculture and Food Research Initiative (AFRI) Competitive Grants Program.

This is a NIH-NIFA Dual purpose with Dual benefits (R01) grant entitled "Generation of Zoonotic Influenza Resistant Recombinant Pigs via Site-directed Technology."

"The main goal of this grant proposal is to use site-specific nucleases and genome editing

technologies to engineer resistance to zoonotic influenza (flu) disease in swine herds," explained Dr. Telugu. "Annually, seasonal influenza is responsible for up to 41,000 human fatalities in United States and upwards of 500,000 casualties worldwide.

In the United States alone, seasonal influenza results in an estimated 150,000 to 200,000 hospitalizations annually, costing more than \$11 billion in direct medical expenses and another \$16 billion in indirect loss of earnings, prophylactic costs, and lost productivity.



Among commercial swine herds, influenza ranks consistently among the top three economic diseases affecting the pork industry. Humans share receptors for and susceptibility to swine-adapted virus, allowing the disease to spread between swine and human hosts.

The strategy of this study is to delete the receptors for viral entry and insert decoy genes to prevent replication and dissemination. This serves as a dual mechanism for protecting the pigs from viral infection, and transmission to human and pig hosts."

# 1.9 MILLION IN NIDCR/NIH GRANT FUNDING

Dr. Lisa Taneyhill has been awarded a \$1.9 million from the National Institute of Dental and Craniofacial Research, NIH (NIDCR/NIH) for her R01 grant proposal entitled, "Neural crest and placode cell interactions during cranial gangliogenesis."

In this proposal, Dr. Taneyhill and her colleagues aim to elucidate how two different cell types migrate, adhere, and coalesce together in the developing chick embryo to form the cranial ganglia, which are responsible for integrating sensory information and controlling cell movements. These processes are mediated by specific junctional complexes, which serve as the "glue" to hold cells together and allow for cell-cell communication. Importantly, such intercellular interactions are critical throughout embryonic and adult development to form new tissues and organs, with aberrations resulting in animal and human diseases.

The results of this research will form a framework for understanding cellular behavior during the formation of other tissues comprising several cell types and will have direct translational applications to therapies based on tissue growth or organ repair and/or regeneration.

*The Taneyhill lab studies the vertebrate neural crest, a transient population of migratory cells that ultimately differentiate to become a wide range of structures, including the peripheral nervous system, pigment cells (melanocytes), and the bones and cartilage of the face and neck.*



FEATURED GRANT





1 Sandra Nola and bumpin' balls  
 2 Dan Bruce and Professor Porter weighing voting beans  
 3 Students enjoying their judging responsibilities  
 4 Winning Cooks: Charlie Apter, Victoria Lake, Bhanu Telugu, Libby Dufour, Bob Peters, Sandra Nola, Dan Bruce (for Modibo Diallo) and Zhengguo Xiao.

5 Jennifer Reynolds, Zhengguo Xiao and Dennis Nola  
 6 Carol Keefer and 4X Chocolate Cheesecake  
 7 Voting with beans

# 2014 FACULTY/STAFF COOKOFF

Students filled the concourse to sample the delicious entries by faculty and staff members for the 2014 Cookoff. Here are the ones they judged the best:

## MAIN DISHES

### First Place:

Hawaii Fried Rice  
Zhengguo Xiao

### Second Place:

bumpin' balls  
Sandra Nola

### Third Place:

Brochette  
Modibo Diallo

## SIDE DISHES

### First Place:

Tantalizing tikka  
Bhanu Telugu

### Second Place:

Pâté  
Modibo Diallo

### Third Place:

Fiesta Dip (It's a party in your mouth!)  
Libby Dufour

## DESSERT

### First Place:

Pumpkin Cinnamon Roll Sheet Cake  
Charlie Apter

### Second Place:

Peanut Butter Ecstasy  
Bob Peters

### Third Place:

Chocolate éclair cake  
Victoria Lake

## DR. KEEFER AWARDED SEED GRANT FOR REPRODUCTIVE RESEARCH

**A joint review panel of the University of Maryland and the Smithsonian Institute (link is external) awarded Dr. Carol Keefer a grant of \$40,000 for her work in trying to save endangered species.**

Her proposal entitled "Alternate Approaches to Produce Pluripotent Stem Cells for Conservation Biology Applications," goes directly to the source by attempting to save genetic diversity by reprogramming cells to act as reproductive cells. Of the award money, \$22,500 will come from the Smithsonian, while the university will provide \$17,500.

In endangered species, genetic diversity is vital to the species recovery. This diversity can sometimes be threatened due to circumstances such as sickness, poaching or other unforeseen deaths. When populations get down to a certain point, every bit of diversity counts. Taking gametes from a subject can be dangerous both for the animal and the collector. Dr. Keefer's program is a way to counteract both issues. "Our goal is to develop new stem cell technologies that can be used to help preserve genetic biodiversity of endangered species," the associate professor explained. In layman's terms, this study would allow researchers to take any cell and reprogram it to be a sex cell. This

was being done by using mature oocytes (eggs) through somatic cell nuclear transfer (cloning.) However, eggs are often difficult to obtain from endangered species. This could also be done by forced expression of proteins within the cells to reprogram them, causing genetic medication. Dr. Keefer feels her method is safer and more effective. "The approaches we propose avoid the use of genetic modification, which would be contrary to the goal of conservation biology of preserving the species pedigree," she said. The idea for the research came as an extension of her research in improving the culture system for embryos.

Dr. Keefer remarked, "We are confident that the research we propose will lead to new technologies for preserving and propagating endangered species." She also credited the Department of Animal and Avian Sciences with providing her with the resources to make this grant possible. "The department supplied the basic facilities, supporting personal, including business staff, and graduate assistantships that have made this research and grant writing possible," she said.

*Learn more about Dr. Keefer's research at [carol-keefersquarespace.com](http://carol-keefersquarespace.com)*





IN MEMORY OF

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DR. BRIAN BEQUETTE

(1960-2014)

Brian Bequette, an Associate Professor in the Animal and Avian Sciences Department and well-regarded Gemstone team mentor, died on September 16 at Washington Adventist Hospital after he collapsed earlier in the day. He was 53.



Bequette was born in Red Bud, Illinois, on Dec. 16, 1960, and received his bachelor's degree from the University of Illinois at Urbana-Champaign, in 1983. Over the next seven years, he received his master's degree from Southern Illinois University and his doctorate from the University of Missouri.

He began teaching as an assistant professor at this university in 2001 after spending 10 years at the Rowett Research Institute in Aberdeen, Scotland, where he conducted "physiological and metabolic research in lactating and growing ruminants," according to a profile on the university's site. His research at this university examined protein and amino acid nutrition and the use of dietary nutrients by ruminant and nonruminant farmed animals. Ruminant animals have four stomachs, while nonruminant animals have one. In 2003, Bequette received the Graduate Research Board Award from this university's graduate school.

Over the course of his academic career, Bequette was published in 47 journal articles and received millions of dollars in research grants and gifts.

Bequette also mentored a group of 12 Gemstone students who are conducting a neuroscience research project that examines the relationship between insulin and Alzheimer's disease. They call themselves "Team Brain Blast," and although their project is outside the scope of Bequette's field, he did everything he could to make sure the team was equipped to succeed, team

members said. "He was pretty critical every step of the way," said junior finance and supply chain management major Vincent Bennett. "He was more than willing to take on our project and learn with us and put in all that extra work on top of all of the responsibilities of being a mentor, and that was something that I really appreciated and thought was really special about him."

Through his expertise, passion and charisma, he inspired his mentees not only to be better students, but also better individuals, team members said.

"He tried to personally cultivate every individual. He tried to help us all, even in our [personal] lives," junior community health major Unnati Mehta said. "He got me into the project. The amount of passion he had for it got me so interested in it."

Bequette was assigned as the team's mentor the summer after their freshman year. He fostered close relationships with each of his mentees that transcended the typical professor-student relationship. "He was part father figure because he would be looking out for us," said junior biology major Shannon Morken. "He was part colleague because he never treated us [as if], 'You're undergraduate students, you can't do that.'"

His mother, LaVerne Hoffmann, step-father, Lyle Hoffmann, his sisters, Glenda Bequette and Lori Murphy, and his nephew, Benjamin Murphy, survive him.

## *Dr. Brian Bequette Student Research Fund*

In honor of Dr. Bequette and his support of student research, the "Dr. Brian Bequette Student Research Fund" has been established to provide financial support for student research projects in the Department of Animal and Avian Sciences.

The priorities of this fund are as follows:

- Firstly, the fund will be used to support the purchase of materials and supplies needed by a team of three or more undergraduate students proposing a mentored research project.
- Secondly, the fund will be used to support the purchase of materials and supplies needed by an individual undergraduate or graduate student conducting a mentored research project.

- Thirdly, the fund will be used to support the travel expenses of sending an undergraduate or graduate student to a national meeting for the purpose of presenting their research.

If you wish to contribute to this fund, please write a check to UMCPF and include the name of this fund on the memo line of your check (Dr. Brian Bequette Student Research Fund). Checks should be mailed to:

Office of Gift Acceptance, UMCPF  
4603 Calvert Road  
College Park, MD 20740

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