

It's not just your (or your father or mother's) biology department anymore!

True to the nature of science, our department continues to change at an incredible pace. Beyond the name change, from Biology to Biological Sciences, nearly 10 years ago, the personnel, facilities, and teaching and research programs seem to have retained only a little of what it was when I arrived as an assistant professor in 1992. As you will see on the following pages, just since the last issue we have expanded our business and IT operations staff and added three new faculty, while bidding farewell to a 30-year veteran of the department, Dr. Klaus Elgert (page 6). We have also seen an overhaul of the freshman teaching labs, the first major renovation of these facilities since Derring Hall opened in 1969 (also on page 6).

One thing that has not changed is that Biological Sciences continues to be characterized by a highly collegial group of students, faculty, and staff who take great pride, not only in their own, but in each others' achievements. It is also still characterized by a remarkable depth and breadth of research expertise and productivity. At the same time, we are increasingly involved in collaborations with colleagues in other departments, colleges, and institutes on campus, as well as researchers at other universities. This is well illustrated by the department's publication record; some of the titles from the past year are given below. This breadth continues to ensure that we are poised to tackle the most interesting and important challenges facing our world today, even as those change at an ever more rapid pace – from neurological disorders to climate change. These are exciting times to be associated with Biological Sciences!

---Brenda S.J. Winkel, Department Head

Complete Genome Sequence of Prepandemic *Vibrio parahaemolyticus* BB220P. (Jensen, Stevens)

Deposition of pathogenic *Mycoplasma gallisepticum* onto bird feeders: host pathology is more important than temperature-driven increases in food intake. (Hawley)

A molecular mechanism regulating the timing of corticogeniculate innervation; Contributions of VLDLR and LRP8 in the establishment of retinogeniculate projections. (Fox)

Experimental support for food limitation of a short-distance migratory bird wintering in the temperate zone. (Walters)

Pond acidification may explain differences in corticosterone among salamander populations. Physiological and biochemical zoology. (Belden)

Effects of food supplementation on a tropical bird. (Moore)

Allerdictor: fast allergen prediction using text classification techniques. (Lawrence)

Improved microchip design and application for *in situ* transmission electron microscopy of macromolecules. (Kelly)

Ecology of nontuberculous mycobacteria--where do human infections come from? (Falkinham)

Structural constraints and functional divergences in CASK evolution. (Mukherjee)

Use of a mariner-based transposon mutagenesis system to isolate *Clostridium perfringens* mutants deficient in gliding motility. (Melville)

Molecular mechanisms responsible for the reduced expression of cholesterol transporters from macrophages by low-dose endotoxin. (Li)

Evolutionary history of tetrodotoxin-resistant sodium channels in snakes. (McGlothlin)

The enigmatic role of sulfatides: new insights in cellular functions and mechanisms of protein recognition (Finkielstein/Capelluto)

Cancer karyotypes: survival of the fittest. (Cimini)

Optimization and model reduction in the high dimensional parameter space of a budding yeast cell cycle model. (Tyson)

Environmental response and adaptation of glycoprotein glue within the droplets of viscous prey capture threads from araneoid spider orb-webs. (Opell)

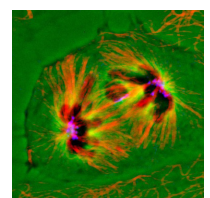
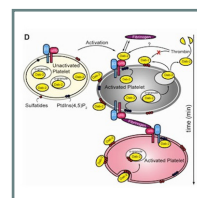
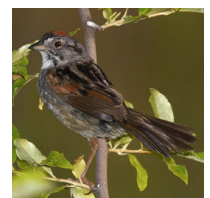
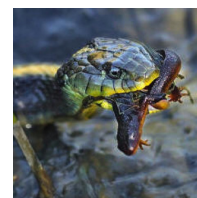
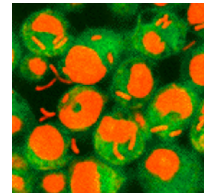
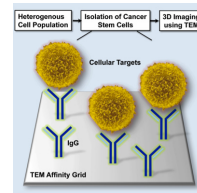
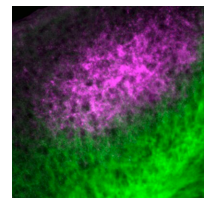
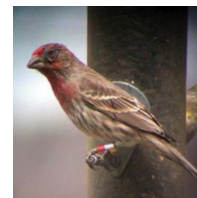
Spontaneous magnetic orientation in larval *Drosophila* shares properties with learned magnetic compass responses in adult flies and mice. (Phillips)

A syndrome of mutualism reinforces the lifestyle of a sloth. (Carey)

Rapid learning of magnetic compass direction by C57BL/6 mice in a 4-armed 'plus' water maze. (Phillips)

Visualizing the production and arrangement of peptidoglycan in Gram-positive cells. (Popham)

Coupled reversible and irreversible bistable switches underlying TGFbeta-induced epithelial to mesenchymal transition. (Xing)



# Stream Ecology: When Symbiosis Turns Sour

By Lindsay Key, Communications Officer at the Fralin Life Sciences Institute



Have you ever been part of a “complicated relationship”?

Branchiobdellid worms and crayfish sure have, according to the research of **Bryan Brown**, assistant professor of biological sciences in the College of Science, and an affiliate of the Fralin Life Science Institute.

Brown studies these critters, which live in freshwater streams, as a model for the larger question he has about community ecology: Why do we find what we find where we find it?

“The answer to this larger ecological question lies in examining the complexity of the relationships that occur in any given ecosystem, and how they are driving the entire system,” Brown said. “If you have one relationship turn sour, or shift from symbiosis to parasitism and vice versa, it affects the entire ecosystem in very significant ways.”

During the summer of 2013, Brown brought on several undergraduate researchers to study the worm-crayfish model as well as other unique symbiotic relationships, as part of the Fralin Life Science Institute’s Summer Undergraduate Research Fellowship program.

This fall, the students are continuing in his lab as undergraduate researchers, gaining from the mentorship of Brown and **James Skelton** of Holly, Michigan, a Ph.D. student in biological sciences in the College of Science who works closely with Brown.

Three students - **Nigel Temple** of Virginia Beach, Virginia, **Sam Doak** of Christiansburg, Virginia, and **Meredith Leonard** of Henrico, Virginia, all majoring in biological sciences in the College of Science, examine the causes and effects of the crayfish-worm symbiotic model.

Temple’s project involves monitoring 28 crayfish habitats in Sinking Creek to look for the effects of a shift from mutualism to parasitism. The worms serve as groomers or cleaners to the crayfish in exchange for nibbling on the crayfish at a rate that doesn’t harm the animal. However, if the worm population becomes too dense, the symbiosis is thrown out of balance and can quickly become harmful to both species.

“We think that when mutualism switches to parasitism, the worm densities may either create a change in crayfish behavior, or create a change crayfish diet, both of which had have a ripple effect throughout the aquatic community,” Temple said

Doak’s project is to investigate the worm dispersal on crayfish hosts in eight artificial stream tanks, to determine the worms’ behavior in choosing hosts.

“We thought that the worms would spread out to re-populate,” Doak said. “But instead we are finding that because there are so many hosts to choose from, they select for the best host. In a tank of six crayfish, one crayfish tends to have a lot of worms on it, and the others tend to have slightly less.”

Leonard looks specifically at how the crayfish recognize and respond to new worms.

“We observed that young crayfish tolerate fewer worms than their older counterparts since their high molting rates supplement the cleaning that the worms would otherwise perform,” Leonard said. “Additionally, we found that worm size did not play a factor in the detection of the crayfish host.”

“This system is great for early-career researchers because it emphasizes that multiple perspectives are key,” Brown said. “The interaction between crayfish and branchiobdellid worms is fascinating in its own right and the students learn the importance of understanding the specifics of the system. However, we also try and keep them focused on the bigger picture -- that their work is about more than just crayfish and worms. It’s also about using this system as a model to answer cutting-edge questions about symbioses that apply across many types of symbiotic interactions.”

Another student, **Miranda Flood** of Chesapeake, Virginia, a biological sciences major in the College of Science, examines the effects of the artificial water color enhancer Aquashade on zooplankton living in urban ponds. Aquashade is often used in recreational areas such as mini golf courses.

“The SURF program gave me the opportunity to conduct research over the summer on projects that I may never have had the chance to be a part of,” Flood said. “Throughout my summer research, I grew as a student and as a scientist because of the SURF program’s events, research talks, research symposium, and its ability to make undergraduate research even more accessible to students than it already is at Virginia Tech. I was proud of the fact that the Brown Lab, including three other participating undergrads and myself, was able to serve as a large presence in the SURF program, and shine a light on ecological research.”

For more information on research in the Brown Lab, visit <http://www.biol.vt.edu/faculty/brown>



The Brown Lab Group, (L to R): Meredith Leonard, Sam Doak, Bryan Brown, Miranda Flood, Nigel Temple, and James Skelton

## 2013 College of Science Outreach Excellence Award Winners

The mission statement of Virginia Tech states that, "The discovery and dissemination of new knowledge are central to its mission. Through its focus on teaching and learning, research and discovery, and outreach and engagement, the university creates, conveys, and applies knowledge to expand personal growth and opportunity, advance social and community development, foster economic competitiveness, and improve the quality of life."

Each year, the College of Science recognizes individuals who excel in demonstrating the ideals of outreach and engagement. We're proud to announce that several of our department members have been recognized as co-winners of the 2013 College of Science Outreach Excellence Awards. Associate Professor **Carla Finkelstein** and the **Microbiology Outreach Group**, which is comprised of Professor **Ann Stevens**, Assistant Professor **Birgit Scharf**, Associate Professor **Florian Schubot**, and Instructor **Richard "Tad" Seyler** (who is also a faculty member at VCOM).

The **Microbiology Outreach Group** has taken an active role in educating young children about microbes and the role of microbes in our daily lives. Children learn that microbes can be beneficial and at times, not beneficial, requiring preventative measures such as washing one's hands. Most importantly, the group promotes the idea that anyone can be a scientist, a message rarely heard by the general public because science seems so esoteric and hard to understand. By teaching young children about microbes through hands-on activities, this group is promoting not only the excitement of learning about and doing science, but also the idea that anyone can be a scientist.

**Ann Stevens** has been the faculty advisor for the Microbiology Club since 2003. The club has held 30+ service learning outreach activities that have engaged over 2,500 K-5 students in eight local elementary schools and at many Virginia Tech events. In addition, the club has provided supplies to several elementary schools across Virginia. Since 2005, Dr. Stevens has served on the Gilbert Linkous Elementary School Science Fair Committee, and in 2008, she became the chair. The student-centered Science Fair reaches out to between 50 and 90 students each year.

With the growth of the Microbiology Club activities and the enthusiasm of Dr. Stevens, other faculty members eagerly became involved. **Birgit Scharf** became involved with the club in 2009, and took on the role of club co-advisor in 2010; ten of the 30+ K-5 outreach programs took place in the intervening two years. **Richard "Tad" Seyler** joined the Gilbert Linkous Science Fair Committee in 2007 and has served as chair or co-chair of the committee ever since. In 2011, **Florian Schubot**, another of the department's microbiology faculty, joined the group and facilitated a service learning activity at a local Montessori School.



2014 Gilbert Linkous Elementary School Science Fair in Blacksburg



Carla Finkelstein introduces speaker Meg Shrader, a Breast Cancer Navigator (and breast cancer survivor) from Augusta Health

**Carla Finkelstein** has taken the extra step of humanizing her research by stepping outside of the lab to raise awareness about breast cancer. Dr. Finkelstein's lab is investigating how changes in circadian rhythms may contribute to the development of sporadic forms of breast cancer in women.

One of the major organizations that she is involved with is the Virginia Breast Cancer Foundation, whose mission is "the eradication of breast cancer through education of and advocacy for Virginians." Dr. Finkelstein has served on the VBCF Board of Directors since 2009, and on their Scientific Advisory Board since 2010. She has joined the VBCF yearly on National Breast Cancer Lobby Day for a rally at Capitol Hill and State Lobby Day to further support breast cancer advocates and their requests on various fronts ranging from funding support for research to bills that ensure access to quality care.

For several years, Dr. Finkelstein has organized an annual visit to Virginia Tech of men and women diagnosed and treated for Breast Cancer, which includes talks by survivor advocates while providing opportunities to educate undergraduate and graduate students about the disease, the impact in our community, and current preventive strategies.

Dr. Finkelstein also works with the Virginia Blue Ridge Affiliate of Susan G. Komen for the Cure. Komen is the most widely known, largest, and best-funded breast cancer organization in the United States. She is a Komen Educator, one of "a group of trained volunteers who raises awareness about the importance of breast health issues, especially in medically underserved populations." In addition, Dr. Finkelstein and members of her lab regularly participate in fundraising and education events like the Komen Race for the Cure, the Avon Walk for Breast Cancer, and the American Cancer Society-Virginia Tech Relay for Life.

In recent years, Dr. Finkelstein also helped organize the annual "Pretty in Pink" fundraising event held in Downtown Blacksburg. In 2013, the event raised over \$5500, which was donated to the Virginia Breast Cancer Foundation. The 2014 Pretty in Pink event will take place on October 23rd

A quote from Dr. Finkelstein perhaps best outlines her mission; *"I am a scientist who believes that breast cancer eradication will require more than just advanced technologies, broad research, innovative thinking, and creative ideas; it will also require a sense of social responsibility from scientists, which will only be achieved through active participation in the decision-making process at the legislative level and by active participation in our communities."*

## Meet our newest department members!



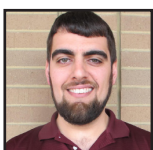
**Silke Hauf** is an Assistant Professor who joined our department in December 2013. She received her M.D. from the University of Wuerzburg, Germany, and pursued postdoctoral research in the Institute of Molecular Pathology (IMP) in Vienna and at the University of Tokyo. From 2005 to 2013, she was a Research Group Leader in the Friedrich Miescher Laboratory of the Max Plank Society in Tübingen, Germany. Dr. Hauf's research focuses on the mechanisms of reliable cell division. You can read more about her research at <http://www.biol.vt.edu/faculty/hauf>.



**Zachary Nimchuk** is an Assistant Professor who joined our department in August 2013. He received his Ph.D. (Genetics of plant-pathogen interactions) from the University of North Carolina at Chapel Hill, and pursued postdoctoral research at the California Institute of Technology. Dr. Nimchuk's research focuses on plant stem cell regulation and developmental genetics. You can read more about his research at <http://www.biol.vt.edu/faculty/nimchuk>.



**Jim Tokuhisa** is an Assistant Professor of Practice who joined our department in August after working in the Virginia Tech Horticulture Department for eight years. He received his Ph.D. from the University of Wisconsin-Madison, and went on to conduct postdoctoral research at the CSIRO Division of Plant Industry, Washington State University, and the Max Planck Institute for Chemical Ecology. Dr. Tokuhisa's research focuses on the biochemical and molecular mechanisms of chemical defense fitness in higher plants. You can read more about his research at <http://www.biol.vt.edu/>



**Michael Athanas**, Senior Computer Support Specialist, joined our department in August 2013, and began in his current position in March 2014. He has more than eight years of IT support and administration experience in educational and business environments, and he is devoted to improving and innovating IT solutions for the Department of Biological Sciences faculty and staff. We're fortunate to have him with us!



**Taylon Jessie**, a receptionist in the Business Office, joined our department in April 2013. She moved to Blacksburg from Indianapolis, IN in 2010, attended Blacksburg High School her senior year, and graduated as a Bruin! She is currently studying Criminal Justice at NRCC, and also plans to begin her business degree this summer. Taylon is the first point of contact for visitors to the Business Office, and provides assistance to the other business office staff members. She's a great asset to our department!



**Sharmin Quesenberry**, a fiscal technician in the Business Office, joined our department in April 2013. She previously worked in the banking industry for 20 years, holding various positions in the retail and operation departments. In the Business Office, she serves as back up to the receptionist, point of contact for new wage appointments and various other responsibilities. We're very happy to have Sharmin as a part of our department!

The OWLS (The Older, Wiser, Learned Scientists) held a 10th anniversary dinner at **Bruce and Christine Parker's** home in August. All 28 guests (including 14 OWLS) planning to attend were present, namely **Bill and Marcella Claus, Asim and Gulbun Esen, Al and Sharon Hendricks, Tom and Kitty Jensen, Anne McNabb and Dick Burian** (hosts), **Bruce and Christine Parker** (hosts), **Duncan and Sarah Porter, Charles and Judy Rutherford, Steve and Rebecca Scheckler, David and Paula Stetler** (all the way from North Carolina), **Ernie Stout, David and Lindsey West**, Department Head **Brenda Winkel** and **Jim Westwood, Al Yousten**, Senior Instructor and Outreach Director **Mike Rosenzweig**, and **Ryan Mowrey** (a Blacksburg High School senior who has been involved with the SEEDS Outreach program since age 7!). The group comprised one of their largest gatherings. Besides the wines, beers, and other beverages, the hors d'oeuvres and main dishes prepared in an Indian theme by Anne McNabb and Christine Parker were an overwhelming success. All this was enhanced and embellished by conversations, many reflecting on the old days from the Bob Paterson era to the present. Dining and chatting under the tent in the backyard made for a very special atmosphere!



**Theresa Koehler**, who earned her B.S. in Biology from Virginia Tech in 1981, was recently inducted into the inaugural class of the College of Science Hall of Distinction. Dr. Koehler is an internationally-recognized expert on anthrax who holds the Herbert L. and Margaret W. DuPont Distinguished Professor in Biomedical Science and is the chair of the Department of Microbiology and Molecular Genetics at the University of Texas Medical School at Houston.

In 2008 Dr. Koehler became a Fellow of the American Academy of Microbiology and in 2009 she was awarded the Paul E. Darlington Award from the University of Texas Graduate School of Biomedical Sciences. She is an associate editor of PLoS Pathogens and a member of the editorial board of the Journal of Bacteriology.

She has chaired multiple national and international scientific conferences and served on several biodefense related federal advisory committees. She currently chairs the National Institute of Health Review Group on Bacterial Pathogenesis.

On November 1, Dr. Koehler visited Virginia Tech for the induction ceremony, where she had an opportunity to reconnect with current and former biological sciences faculty members.



L to R: **Bill Claus**, **Steve Melville**, **Rebecca Nikonowicz** (daughter of Dr. Koehler), **Al Yousten**, **Theresa Koehler**, **David Popham**, **Khidir Hilu**, **Anne McNabb**, and **Brenda Winkel**

The department's third **FIRESIDE CHAT** career panel was held on Thursday, November 14th, in the Torgersen Museum. The panel featured six alumni with very diverse backgrounds: **Edward Goyette**, Chief Executive Officer, American Biosystems, Inc.; **Betsy Hagan**, D.D.S., M.B.A., Senior Associate Dean (retired), VCU School of Dentistry; **Anne Howland**, Physician Assistant, New River Gastroenterology Associates; **Tim Howland**, Associate Director of Corporate and Foundation Relations, VT College of Science; **Debbie Koller**, Ph.D., Director and Senior Principle Scientist (retired), The Altria Group; and **Thomas Ryan**, M.D., Executive Vice President and Chief Medical Office of Mary Washington Healthcare (retired) and member of the VT Board of Visitors. It seems to have been another very successful and productive event, judging from the many undergraduate and graduate student participants who stayed after the panel presentation to chat with the alumni. Many thanks go to **Donna Wardell** of the College of Science Development Office for help in organizing the event and Biological Sciences majors, **Kristen Fisher**, **Kai Norbeck**, and **Ben Heithoff**, for help with setting up.



The **Tenth Annual Biological Sciences Research Day** was held on Saturday, February 22, 2014 at the Virginia Tech Graduate Life Center. The annual one-day event provides graduate students with experience in presenting their research to the public, fosters academic and social exchange between research labs, helps to update alumni on research activities in the department, and to educate prospective students about research in the department. The program and logistics for research day activities are organized by a rotating committee of graduate students, faculty, and staff; this year's committee was chaired by Associate Professor **Jianhua Xing**. The **Biology Graduate Student Association**, led by **Kevin Geyer**, also played a major role in the planning and execution of the event.

**Christian Hong**, Assistant Professor of Molecular Cell Physiology at the University of Cincinnati Medical School, was the keynote speaker at the event this year. Dr. Hong, a former member of the Tyson Lab, received his Ph.D. from Virginia Tech in 2003. His lab is investigating the molecular mechanisms of circadian rhythms and their interconnected network with other cellular processes such as cell cycle, DNA damage response, and metabolism.

The following awards were presented to participating graduate students, supported by a fund established by the department's Alumni Advisory Board:

Best Oral Presentation: **Joshua Nicholson** (Cimini Lab); EEB Poster First Prize: **Sahnzi Moyers** (Hawley Lab); EEB Poster Second Prize: **Matthew Becker** (Belden Lab); MCMC Poster First Prize: **Benjamin Webb** (Scharf Lab); MCMC Poster Second Prize: **Jordan Mancl** (Schubot Lab); First/Second Year Poster Prize: **Laura Schoenle Thomas** (Moore/Bonier Lab).

The department owes a huge thank you to Novozymes, Inc., who provided \$5000 that supported the visits of 10 prospective graduate students, several of whom have already committed to join the department in 2014. Alumnus **Shawn Semones**, Director of Research & Development at Novozymes, helped to coordinate the donation. Dr. Semones received his Ph.D. in 1999, working in the laboratory of **Erik Nilsen**.



Through collaboration with the New York Botanical Garden (NYBG), Curator **Tom Wieboldt** and the department's Massey Herbarium received a grant for \$14,452 to digitize approximately 5500 specimens of fungi, legacy of the late **Orson K. Miller** and his students. With NYBG as the lead institution, a consortium of 35 institutions in 24 states developed a proposal through NSF's ADBC program (Advancing Digitization of Biological Collections) entitled, "The Macrofungi Collections Consortium: Unlocking a Biodiversity Resource for Understanding Biotic Interactions, Nutrient Cycling and Human Affairs." Although relatively small, the mycological collection at VT was deemed sufficiently important to qualify the herbarium for funds to purchase their own imaging equipment, which will allow them to continue digitizing other collections after the fungi are done. Specimens are currently being databased, bar-coded, imaged, and georeferenced using students and volunteers. Data will be uploaded to the World Wide Web through MycoPortal and available online.



*Freshmen hard at work in a Derring biology laboratory, circa 1984*

## A Fresh Look for Some Derring Labs

We're sure that many of you have fond (and, perhaps in some cases, not so fond,) memories of your freshman biology laboratory courses on the first floor of Derring Hall. Until recently, the labs looked much the same as they did when Derring Hall opened in 1969. However, in the summer of 2013, the four laboratories underwent a long overdue renovation.

The rectangular lab tables were replaced by standing-height octagonal tables, which are more ergonomically-friendly and allow for better communication. The rooms also have new lab stools, whiteboards, podiums, and benches. In addition to the new furnishings, the rooms received a new coat of paint, a redesigned air handling system, new floors, and dropped ceilings.



*Pre-renovation*



*Post-renovation*

"The GTAs love teaching in the new labs, which have a new layout that is more conducive to student collaboration," says **Catherine Sarmadi**, Instructor and General Biology Lab Coordinator. "Compared to the previous labs, sound transmission is excellent, due to the dropped ceilings, the lighting is much better, and there is more storage space and more electrical outlets. The new instructor podiums and the whiteboards are also major improvements from the old labs."



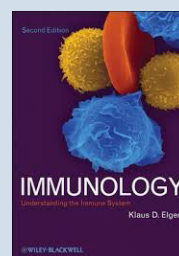
After nearly 40 years as a faculty member at Virginia Tech, Professor **Klaus Elgert** has retired. This March, Dr. Elgert was conferred the title of "professor emeritus" by the Virginia Tech Board of Visitors.

Dr. Elgert taught the flagship course, Immunology and Immunology Laboratory, and advanced courses in immunology for graduate students. His teaching was recognized with four Department of Biological Sciences Teaching Awards and two College of Science Teaching Awards. In his career, Dr. Elgert mentored three undergraduate honors theses, more than 50 undergraduate research students, 11 master's degree students, 10 Ph.D. students, and four post-doctoral appointees. He served on multiple graduate advisory committees in biological sciences and other departments.

Dr. Elgert's research focused on tumor immunology. He authored and co-authored more than 80 peer reviewed publications and a widely adopted textbook on immunology. He also presented multiple papers at regional, national, and international conferences, and received research funding from a variety of sources.

Dr. Elgert received his bachelor's degree from Evangel University and a doctoral degree from the University of Missouri School of Medicine.

Dr. Elgert is contemplating a third edition of his textbook, or developing his extensive immunology test bank into novel tutorials, for example, for beginning medical students. The department is pleased to still have a chance to see him in Derring Hall on a regular basis!



**Dana Hawley**, assistant professor of biological sciences, was recently awarded the Patriot Award from the Employer Support of the Guard and Reserve. The nomination was submitted by Army Reserve Captain and doctoral student **Camille Harris** who served on a nine month deployment to Southwest Asia as a veterinarian supporting military working dogs as well as troops by providing food inspection services and zoonotic disease risk assessment. "I joined the lab in 2007 as a non-traditional student and practicing veterinarian at the time, and Dr. Hawley was very supportive when I decided that I needed my work/life balance to include the opportunity to serve in the United States Army," says Camille. "I really feel like she's the one that deserves the award," says Dr. Hawley. "She certainly made the real sacrifice here by going overseas and giving her time and skills."



*L to R: Camille Harris, Dana Hawley, and Grant Risinger of the Virginia ESGR*

## Grants, Awards, and Other News

We're proud to announce that four of our department members have received 2013 Virginia Tech Outstanding Performance in Labs Awards! **Laila Kirkpatrick** (Hawley Lab), **Katrina Lasley** (Microbiology Labs), **Carla Tyler** (Microbiology Labs), and **Paul Youmans** (Phillips Lab) were recognized in a ceremony at The Inn at VT on November 13th. The award is co-sponsored by the Department of Human Resources, the Office of the Vice President for Research, and University Organizational and Professional Development (UOPD). The award recognizes an individual or team or performance supporting research in a non-administrative position. Outstanding Performance in Labs is defined as exemplary accomplishments, professional development, and any relevant background and experience demonstrating how the individual or team interacts with students.

**Kaitlyn Adreano** (Finkelstein Lab) and **Kristen Fread** (Capelluto Lab) received 2013 Virginia Tech Sigma Xi Undergraduate Research Awards.

Associate Professor **Lisa Belden** was the Virginia Tech Scholar of the Week in July 2013.

**Kelly Drews**, a senior biological sciences major, was awarded a highly competitive Undergraduate Research Fellowship through the American Society for Microbiology. The fellowship rewards academically gifted students who intend to pursue graduate studies in microbiology. It provided a 10-week summer research stipend and travel funds to the 2014 ASM General Meeting in Boston this May. Kelly has been working with Shiv Kale at VBI, whose research group focuses on fungal pathogens of humans.

**Camille Harris**, a Ph.D. student in the Hawley Lab, received a Dissertation Award from the Southern Regional Education Board (SREB). Camille is studying habitat disturbance and disease ecology, the role of invasive species in disease transmission, and wild-life medicine.

Professor **Liwu Li** was recognized as the Virginia Tech Scholar of the week in October 2013.

**Sahnzi Moyers**, a Ph.D. student in the Hawley Lab, received a Virginia Tech Sigma Xi Ph.D. Research Award and an Animal Behavior Society Student Research Grant. Sahnzi is studying social behavior and disease transmission in house finches.

**Jenna Sackenheim**, a senior in biological sciences and undergraduate researcher in the Hilu Lab, was awarded a 2013-2014 Amenta Robeson Sjogren World Hunger Scholarship. The scholarship, based on academic achievement, is for undergraduate students involved in research or study that may help find a solution to the problem of world hunger.

In October, Professor and Assistant Provost for Undergraduate Education **Jill Sible** was named as VT's Teacher of the Week by the Center for Instructional Development and Education Research (CIDER).

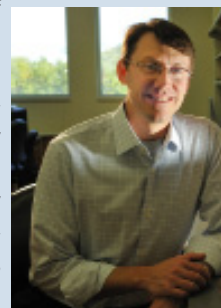
Professor **Ann Stevens** is one of seven VT faculty members who have been appointed to the Academy of Faculty Service. The Academy recognizes exceptional service to the university, beyond a faculty member's usual responsibilities. Dr. Stevens was nominated based on her exemplary leadership and vision in her service to the Academy of Teaching Excellence in addition to noteworthy service to department and college honorifics committees.

**Stephanie Voshell**, a Ph.D. student in the Hilu Lab, received the 2013 Harvill Award for the Best Presentation in the Botany Section of the Virginia Academy of Science Annual Meeting. Her presentation, co-authored with Dr. Hilu, was entitled, "Evolutionary history of canary grasses: phylogeography, cytology and floret structure."

**Benjamin Webb**, a Ph.D. student in the Scharf Lab, won the Best Oral Presentation Award at the American Society of Microbiology Virginia Branch Meeting in November. The title of his talk was, "The *Sinorhizobium meliloti* chemoreceptor McpU directly binds proline and mediates chemotaxis towards host plant exudates."

In January, Alumni Distinguished Professor **Art Buikema** was named as VT's Teacher of the Week by the Center for Instructional Development and Education Research (CIDER).

**Michael Fox**, an associate professor of biological sciences and the Virginia Tech Carilion Research Institute, has been awarded the 2013 Jordi Folch-Pi Memorial Award by the American Society for Neurochemistry. The honor is given each year to a young neurochemistry investigator who has demonstrated success early in his or her career and shows promise for future accomplishments.



Fox's research focuses on the formation of synapses in the central nervous system and, more specifically, on how neurons know where to grow and which connections to create. For example, recent studies by Fox's laboratory have revealed clues as to the molecular cues that retinal nerves use to connect to the brain.



Professor **David Popham** has been recognized with the 2013 Jack Kenny Award for Outstanding Service from the Journal of Bacteriology. According to the official announcement, Dr. Popham won the award for "his numerous and timely reviews that set the standard for quality, fairness, and promptness. His expertise is exceptionally broad, and his judgment, experience, and wisdom are great assets to the JB reviewing system."

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## *Department of Biological Sciences Annual Fund*



One person can make a big difference!

The Department of Biological Sciences has a rich history, a strong international reputation, and a bright future. The department oversees the largest degree-granting program at Virginia Tech, with more than 1700 student majors, and also provides instruction to thousands of other students from across the college and university. Our undergraduate and graduate degree programs prepare society's future scientists. And our outstanding faculty members conduct cutting-edge research that impacts society as a whole.

Your support is critical to our success. Any monetary contributions you make could be used to support deserving students, provide necessary equipment, or extend our research activities. This year we are focusing our fundraising efforts on two important funds – The Department of Biological Sciences Research Day Fund (876105) and the Department of Biological Sciences General Fund (881317).

When you receive your College of Science Annual Fund letter or phone call, please earmark your support for the Department of Biological Sciences and one of these special funds. Simply make a notation on the gift card or let the caller know that you want to direct your donation to the Biological Sciences Department and then include the specific fund name and number. To make an immediate contribution, you may visit the university's web site at [www.givingto.vt.edu](http://www.givingto.vt.edu) or contact the Office of Gift Accounting at (800) 533-1144.

For more information about these funds or to learn more about other ways to give, please contact Jenny Orzolek, Director of Development for the College of Science, at (540) 231-5643 or [jorzolek@vt.edu](mailto:jorzolek@vt.edu). We thank you in advance for your support!