A note from the department head

Welcome to the spring/summer 2017 edition of the Biological Sciences newsletter. As reflected in these pages, the department has just seen the completion of another very successful academic year, with a great deal to celebrate and a very bright future ahead. Last month we conferred degrees on several hundred Biological Sciences majors and a growing cohort of students earning B.S. degrees in Microbiology, filling Burruss Hall close to its capacity of 3000 with graduates and enthusiastic family members and friends! Our undergraduate degree programs continue to draw strong interest, including thanks to a new Biomedical option; we anticipate welcoming our largest class to date in the fall, with almost 450 freshmen and some 50 transfer students attending orientation this summer!

Many of you will recognize that there are many changes afoot on our campus; this is a time of significant change and growth for the department, as well. Derring Hall, the primary home for Biological Sciences, is undergoing substantial renovations, particularly to our freshman teaching laboratories and research facilities for the “stream team” and molecular microbiology programs, with some $10M in improvements in progress. The 20 new assistant professors hired over the past eight years, with expertise ranging from freshwater ecology (see story on p. 2) to cell cycle/cancer biology and neurobiology, are all establishing highly active research programs filled with students and postdocs and bringing leading-edge knowledge into our classrooms. You are introduced to the two most recent additions, Meryl Mims and Susan Whitehead, on page 8; four more will join us this fall, including as part of the university’s new destination area in Global Systems Science.

You will also see that our faculty continue to compete exceedingly well for major grants, ensuring that the department’s efforts to address the most challenging issues facing our planet continue to expand, hand-in-hand with training the next generation of scientists (a few examples are highlighted on p. 4). As you will also see in these pages, we are very proud to watch our alumni head out into the world beyond Virginia Tech to use this training in very important, and sometimes surprising, ways and with remarkable outcomes, including having a ridge on Mars named after them (pp. 6-8)!

I hope you will enjoy reading about these and other aspects of your home department in this newsletter, including a lovely alumni remembrance of former faculty member, Bob Ross (p. 5), and our recognition this year by the university as an Exemplary Department (p. 9). Do please make an effort to stop by and visit us whenever you can - as your alma mater continues to strive to make you as proud of us as we are of you!

Brenda Winkel
Professor and Department Head
Global Change Center researchers help water authority create ‘best water possible,’ prepare for warmer temperatures

Adapted from an article by Lindsay Key of the Fralin Life Sciences Institute

Pumping oxygen into the bottom waters of Southwest Virginia’s drinking water reservoirs can reduce treatment costs and help fish and other aquatic life, according to an interdisciplinary research team with the Global Change Center at Virginia Tech.

The team has installed oxygenation systems in three reservoirs that serve Roanoke and surrounding county residents — Carvins Cove, Falling Creek, and Spring Hollow — and are monitoring them to see how increased oxygen levels affect the amount of metals in the water.

The Appalachian region’s geology results in high levels of iron and manganese in sediment that lines the bottoms of reservoirs. If these metals are released from sediment into the drinking water, they can cause taste, staining, and odor issues.

However, pumping additional oxygen into the bottom waters of the reservoirs can keep these metals safely locked up in the sediment, even in warmer temperatures.

The team — which includes Cayelan Carey, Assistant Professor of Biological Sciences, plus Quinn Thomas, an assistant professor of Forest Resources and Environmental Conservation, geoscientist Madeline Schreiber, environmental engineer John Little, and their students — recently received a seed grant from the Global Change Center to purchase a weather station for the project.

The station, located at Falling Creek Reservoir, allows them to plug real-time weather data into their models, which are constructed to pinpoint the best time to oxygenate the water. Previously, the team had relied on data from the weather station at the Roanoke-Blacksburg Regional Airport, which is 11 kilometers away, subject to different wind currents, and at a different elevation.

The oxygenation systems have already been a great investment, according to Jamie Morris, water production manager at the Western Virginia Water Authority (WVWA). The technology has reduced the amount of chemicals the authority has to apply to the water to treat it, which saves consumers money.

The water authority has partnered with Virginia Tech since the 1990’s, when Little and his students first designed the oxygenation systems and placed them in Spring Hollow, Carvins Cove, and Falling Creek reservoirs. Former doctoral student Paul Gantzer ’08 even went on to start a company, Gantzer Water Resources Engineering LLC, based on the technologies he helped develop as a student at Virginia Tech.

For more information on Dr. Carey’s research, visit http://carey.biol.vt.edu.

For more information on the Falling Creek Reservoir Seed Grant team, visit http://www.globalchange.vt.edu/reservoirs-confronted-with-global-change/
Molecular alarm system ensures body’s first response to an attack will be a healthy one

Adapted from an article by Dan Rosplock of the Biocomplexity Institute

For bacteria and other would-be microscopic invaders, your body is like a tightly guarded fortress.

Each of your 37 trillion cells is equipped with proteins that are primed to detect unfamiliar molecules. When triggered, they set off a cascade of reactions that tell your body to mount an immediate response.

This molecular alarm system is a feature of what biologists call “innate immunity,” your body’s first line of defense against external threats.

However, this system’s sensitivity can be a double-edged sword. The longer a cell sets off its alarm signal, the more severe the body’s immune response will be.

If the alarm’s not shut off at the appropriate time, a healthy reaction like inflammation will start to spike at dangerous levels — a condition that’s been closely linked to heart disease, allergies, obesity, degenerative brain diseases, and cancer.

Until recently, scientists were stumped as to what could be going on inside our cells to keep this alarm system in check. But a research team based at Virginia Tech may have just uncovered a key piece of the molecular puzzle: a helper protein called TIRAP that cells can render inactive when the defensive response becomes harmful to the body. Daniel Capelluto, Associate Professor of Biological Sciences and Fellow in the Biocomplexity Institute, is one of the researchers.

The team’s landmark findings, which have implications for autoimmune diseases, such as rheumatoid arthritis and psoriasis, were recently published in Scientific Reports.

Normally, the surface membranes of our innate immune cells are enriched with TIRAP proteins, poised to receive and transmit emergency signals from the outside.

Unfortunately, TIRAP isn’t equipped with an off switch. It will continue to sound the alarm beyond the bounds of a healthy immune response unless it is forcibly removed from our cell membranes.

Using high-resolution imaging techniques and some carefully selected cellular mutations, Capelluto’s team was able to demonstrate that cells employ a protein modification process to keep TIRAP under control.

“This discovery could give drug developers a new way to keep an overreacting immune system in check,” said long-time collaborator Carla Finkielstein, Associate Professor of Biological Sciences and Fellow in the Biocomplexity Institute. “Blocking or enhancing TIRAP’s ability to bond inside our cells will allow us to reconfigure the base level of our innate immune reaction, ensuring that our body’s first response to an attack will be a healthy one.”

This project was developed in collaboration with Virginia Tech graduate students Xiaolin Zhao, Wen Xiong, and Tuo-Xian Tang; former postdoctoral associate Shuyan Xiao; Jeffrey Ellena, a senior scientist at the University of Virginia; and Geoffrey Armstrong, a research associate at the University of Colorado-Boulder, were also on the research team.

For more information on Dr. Capelluto’s research, visit http://www.faculty.biol.vt.edu/capelluto

Daniel Capelluto works on an experiment with Wen Xiong (far right), and Tuo-Xian Tang (center), who are visiting Ph.D. students. The students are collaborating with Capelluto on the research.
New and Renewed Grants

**Collaborative Research: Temporal Stability of Riverine Communities in Dendritic Networks at Multiple Spatial Scales**, National Science Foundation, 3 years, USD $774,225, Principal Investigators: **Bryan Brown** (Assistant Professor of Biological Sciences, Virginia Tech), Co-PIs: Christopher Swan (Univ. of Maryland BC), Eric Sokol (INSTAAR, Univ. of Colorado), Kurt Anderson (UC Riverside)

A key step toward understanding how natural ecological systems function is answering questions like: Why are some ecological communities more sensitive to disturbance than others; and Can the sensitivity of an ecological community be predicted based on its location in a landscape? Answers to these types of questions are important because they help predict how ecological systems—and the ecosystem services they provide—will respond to a wide range of human impacts. Our work will explore how sensitivity of ecological communities is affected by environmental characteristics that dictate how organisms move about the landscape. We will use stream invertebrate communities in river networks as a model system, and use field surveys, field experiments, and a unique merger between simulation and analytical modeling to address how stream network architecture affects the stability and functioning of stream communities in response to disturbances.

**Headwater stream networks in a warming world: predicting heterotrophic ecosystem function using theory, multi-scale temperature manipulations and modeling**, Division of Environmental Biology, National Science Foundation, (Project begins Fall 2017)

PIs: Jonathan Benstead (Alabama), Vladimir Gulis (Coastal Carolina), Ashley Helton (Univ. of Connecticut), Amy Rosemond (UGA), **Erin Hotchkiss** (Assistant Professor of Biological Sciences, Virginia Tech)

This project will test the effects of temperature on organic matter breakdown at the stream reach and stream network scales. We will measure organism, ecosystem process, leaf litter, and water chemistry responses to a whole-stream temperature manipulation at Coweeta Hydrologic Laboratory, NC to (1) inform ecological theory that uses basic principles to understand how the effects of temperature scale from individual organisms to entire ecosystems, and (2) build a model that simulates the effects of temperature on organic matter processing at the stream network scale.

**Novel Paradigm of Innate Programming in Wound Repair**, National Institute of Allergy and Infectious Diseases, National Institutes of Health, 1 year, $400K

PI: **Liwu Li** (Professor of Biological Sciences, Virginia Tech)

The pro-inflammatory polarization of monocytes/macrophages is a hallmark of low-grade inflammatory syndromes such as impaired wound healing. Despite its significance, the molecular mechanisms controlling monocyte low-grade inflammatory polarization is not clearly understood. This presents a major impediment for the development of effective treatments for chronic diseases associated with low-grade inflammation. Bacterial endotoxin Lipopolysaccharide (LPS) is a powerful agent mediating monocyte polarization, causing complex and dynamic alterations in monocyte activation, priming and tolerance in a concentration-dependent fashion. One of the least studied, yet highly important effect of LPS is manifested in the sustained low-grade inflammatory polarization by subclinical super-low dose LPS. Low-grade circulating endotoxemia is prevalent in humans with adverse conditions such as obesity and diabetes. We demonstrated that subclinical super-low dose LPS preferentially polarizes monocytes into a low-grade pro-inflammatory state with elevated IRF5 levels.
Alumnus John Mecham (pictured left) recently sent this fond remembrance of Professor Emeritus Robert Ross to Dr. Ross’s daughter, Nancy Ross (Professor and Department Head of Virginia Tech Geosciences:

My name is John Mecham, I received my B.S. in Biology and Ph.D. in Zoology from Virginia Tech in 1967 and 1972 respectively. I am a Professor of Biology at Meredith College in Raleigh NC and I have been teaching ever since leaving Tech in 1972 – I suppose I should be thinking about retirement. With humble feelings, I wanted to share a story with you.

Your father was my course advisor for my 4 years as an undergraduate; he taught me Comparative Anatomy and Ichthyology, but my fondest memories of him were not from those classes; although those course experiences also hold good memories for me. What I remember most are the times I would walk to his office across those old wooden floors of the building that housed Biology, to find him, with cigar in mouth, studying a specimen or reading a journal; upon which he would launch into an account of what he liked to do most – discover something new. We seldom actually discussed the courses I should take or other mundane topics that course advisors are supposed to cover.

At some point during my time with him he would say, “Mecham, you are a smart guy. You know what courses you want and should take.” And that was that. To this day, I can say that he was the best advisor I ever had. Why? Because he gave me much more than course advice; he set an example of how scientists think and how scientists communicate, and most important, a passion for the organism and for knowledge based on reasoned thought. He was both embodying and enabling. What I really wanted to convey to you was a single anecdote. One day, I think it was late 1965 or early 1966, I found him sitting in an empty lab at a classroom lab bench with several papers spread out in front of him, and when I walked in to speak to him and get the necessary signatures I needed to register, he looked up at me, paused saying nothing, and then said, though still deep in thought about something he was reading, “Here, sit down, sit down here” pointing to the seat next to him.

Leaning on his elbows, he took on a reverent tone as if he was about to share with me some great mystery of life; pondering something that has been said to be comparable to the Galilean or Copernican revolution in astronomy; something that made undeniable sense to him; something that for him answered numerous questions about vertebrate evolution – the combination of evidence from a variety of disciplines that was called the “plate tectonics revolution.” As you might guess, at that time I was mostly ignorant about plate tectonics; and no doubt he assumed that to be the case; but I think at that moment, I became a test case for him. Sitting there next to him was this neophyte who was too young and inexperienced to be biased or scientifically prejudicial, and your father was about to bounce a really big thought off of him. In this very quiet place and moment, he spread several papers out in front of me, asked me to read a few selected portions and then came the ‘Big Question’, “Mecham, what do you think about plate tectonics?”

To this day I can remember every detail of the room, the season, the smell of Biology (and cigars), the scattered papers, the look on his face. I said it sure makes sense to me and was particularly taken with some of the details; but that is not the point. The point for me was that here was this expert in his field, someone for whom I had great respect, at times a sort of rough looking man’s man, maybe even gruff at times, a scientist with a capital S, a man of great scientific maturity and reason – here was this man of stature asking me what I thought about an original idea.

I hope I was able to paint a clear enough picture so that you can get a sense of what I was feeling and what I have continued to carry with me every day since. And for the past 45 years whenever a student comes to see me as her/his course advisor, I always take just a moment to reflect back on your father and frequently ask, “What do you think about . . . ?” You see, quoting a seasoned professor at the University of Notre Dame, “The most important thing is the power of the offering. It’s not so much about the works, themselves. It is about what happens when what I am offering gets received.”
Alumni Spotlights

Nathan Kennedy received a B.S. in Biology and a B.A. in Economics from Virginia Tech in 1999. He went on to receive an M.S. (2001) and Ph.D. (2015) in Natural Resource Economics from Virginia Tech. His expertise includes, “applied economic analysis, soil and water conservation, agriculture, technical writing, and emergency response management, with over 12 years of professional experience in 20 countries, spanning five continents” He is currently the Lead Economist for the South Florida Water Management District in North Palm Beach, FL.

Meredith Kernbach received a B.S. in Biological Sciences from Virginia Tech in 2016. While at VT, Kernbach worked as an undergraduate researcher in Ignacio Moore’s lab. She is currently a graduate student at the University of South Florida in Tampa, where she is pursuing a degree in integrative biology studying ecoimmunology, a facet of integrative biology that combines aspects of immunology with ecology, biology, physiology, and evolution. Her research is focused on how light pollution affects the stress response and disease dynamic (how they become infected and what symptoms they display) in house sparrows.

Adrienne Lalley received a B.S. in Biological Sciences from Virginia Tech in 2010. She currently works as an Elephant Keeper II at the North Carolina Zoo in Asheboro. “When I started in the biological sciences program, I knew I wanted to work with animals I just wasn’t sure in what capacity,” says Lalley. “I’ve been in animal care since I graduated, first with horses, then on to a safari park working giraffe, rhino, and all kinds of other hoofstock, and now with elephants at the NCZoo. We care for six African elephants making sure all their needs are met on a daily basis. It’s a lot of work but it’s been a great experience.”

Steven Thai received a B.S. in Biological Sciences from Virginia Tech in 2010 and then earned a Pharm.D. degree at Virginia Commonwealth University in 2014. He is currently employed as a Pharmacist with HealthSouth Rehabilitation Hospital of Northern Virginia and with CVS Health. Since 2011, Steven has volunteered for the Virginia Medical Reserve Corps. The MRC is “comprised of teams of medical and public health professionals who, along with interested community members, volunteer their skills, expertise and time to support ongoing public health initiatives and assist during emergencies throughout Virginia.”

Kyle Fresa received a B.S. in Biological Sciences from Virginia Tech in 2015. While at Tech, Kyle served as the President of both the Animal Rights Club and the Campbell/Eggleston RHF Community. He is currently an Embryologist at The Jones Institute for Reproductive Medicine at the Eastern Virginia Medical School in Norfolk, VA. From the JIRM website: “Since our inception, the Jones Institute has been an active and prolific leader of scientific advances in infertility treatment worldwide with outstanding contributions to the specialty of reproductive biology. We continue to seek innovative ways to improve infertility treatments. Our unique combination of proven clinical protocols and advanced research and development techniques provides an unmatched environment for treating infertility and providing compassionate care for our patients.....We’re the first IVF clinic in America. We pioneered in vitro fertilization (IVF) in America in 1978 and have celebrated the births of 4,000 IVF babies.”

We love hearing from our alumni! Drop a note to vsutherl@vt.edu to let us know about your time at Virginia Tech, and about what you’re doing now!
Donna Ormsby Volkmann received a B.S. in Biology from Virginia Tech in 1984, and an M.A. in Curriculum and Instruction, also from Virginia Tech, in 2008. She has worked as an AP Environmental Science/Biology Teacher for Fairfax County Public Schools since 2005, and is currently the Science Department Chair at James Madison High School. In 2015, she received an Albert Einstein Distinguished Educator Fellowship (AEF), and spent a year working in U.S. Department of Energy Office of Science. The AEF Program provides a unique opportunity for accomplished K-12 educators in the fields of science, technology, engineering, and mathematics (STEM) to serve in the national education arena. Fellows spend eleven months working in a Federal agency or in a U.S. Congressional office, bringing their extensive knowledge and experience in the classroom to education program and/or education policy efforts.

David Hummel received a B.S. in Biological Sciences from Virginia Tech in 2002. In 2005, he returned to Blacksburg, and graduated four years later with a DVM from the Virginia-Maryland College of Veterinary Medicine. He then completed a surgery residency and master’s program at the University of Illinois College of Veterinary Medicine (2014) and has since become a Diplomate of the American College of Veterinary Surgeons. He is currently in private practice at Skylos Sports Medicine in Ellicott City, MD, performing orthopedic and minimally invasive arthroscopic surgery. “I owe a good deal of my interest in clinical medicine from my foundation in biology at Virginia Tech,” says Hummel.

Dhwani Haria received a B.S. in Biological Sciences from Virginia Tech in 2012. During her time at VT, she twice worked as a BIOL undergraduate teaching assistant, for courses taught by Art Buikema and Tad Seyler. In 2014, she received an M.S. in Biomedical Sciences from the University of Texas Health Science Center at Houston. She is currently employed as a Research Associate with Second Genome, Inc. in San Francisco, CA. From the company website: “Founded in 2009 by leading experts in microbial research and drug discovery, Second Genome is developing a proprietary, first-in-class microbiome drug discovery platform to develop novel therapeutics in a range of diseases.”

Amy McNulty earned a B.S. in Biology from Virginia Tech in 1999 and a Ph.D. in Cell & Molecular Biology, Pathology from Duke in 2005. She is currently an Assistant Professor in Orthopedic Surgery and an Assistant Professor in Pathology at Duke University Medical Center. From her Duke website: “The long-term goals of the McNulty lab are to develop strategies to prevent osteoarthritis and to promote tissue repair and regeneration following joint injury. In order to achieve these goals, we need to understand the mechanisms necessary for tissue repair and regeneration and how they are altered with aging and joint injury. Specifically, Dr. McNulty’s lab is working to enhance the integrative repair of meniscus to restore meniscal function and decrease the risk of osteoarthritis development.”

Scott Cooney received a B.S. in Biology from Virginia Tech in 1997, then went on to earn both an M.S. in Fishery and Wildlife Biology (2001) and an M.B.A. (2002) from Colorado State University. He is the Founder and CEO of Pono Home in Hawaii. Scott says, “My current company greens homes and small businesses, focusing on energy/water efficiency, health, and other green initiatives. We’re based in Honolulu (there’s a fairly big VT contingent out there due to the huge military presence in Hawaii). We’ve done retrofits of about 1000 homes to date, and this month we kick off our biggest project yet--a 5000 home retrofit program for the Hawaii Public Housing Authority, which is low income housing. Our program should save the state and federal governments millions of dollars over the next decade, most of it going to buy foreign diesel fuel, on which Hawaii’s power grid is primarily run.”
Meryl Mims recently joined VT Biological Sciences as an assistant professor. Dr. Mims focuses her research on how species’ traits and the environment interact to influence community and population structure of aquatic organisms. She aims to bridge fundamental work in freshwater population and community ecology with applied conservation and management needs using a range of approaches, from population genetics to community and landscape ecology.

She earned a B.S. in biology from Georgia Tech in 2007 and M.S. and Ph.D. degrees in aquatic and fishery science, both from the University of Washington in 2010 and 2015, respectively. Most recently, Dr. Mims was a Mendenhall Postdoctoral Research Fellow for the U.S. Geological Survey in Corvallis, Oregon. Welcome, Dr. Mims!

Susan Whitehead also recently joined VT Biological Sciences as an assistant professor. Dr. Whitehead focuses her research on ecology and evolution of interactions between plants and other organisms, using a combination of field studies, greenhouse, and lab experiments with plants and the diverse organisms that consume them, including insects, fungal pathogens, and vertebrates.

She earned her B.A. in biology from Oberlin College in 2001 and a Ph.D. in ecology and evolutionary biology from the University of Colorado in 2013. She most recently served as a postdoctoral research associate at Cornell University. Welcome, Dr. Whitehead!

Mars Ridge named after VT biological sciences alumnus

Adapted from an article by Steven Mackay, Communications Director, VT College of Science

A ridge along the planet Mars’ Marathon Valley has been named after Virginia Tech Department of Biological Sciences doctoral alumnus Robert A. Wharton Jr., who spent his career as an astrobiologist, an explorer and scientist working in Antarctica, and an educator.

The ridge was named by NASA’s Mars Exploration Rover Opportunity team in honor of Wharton for his pioneering work in the use of terrestrial analog environments, particularly in Antarctica, where he studied scientific problems that could be equated to research on the likelihood of living on Mars.

Wharton earned his doctoral degree in botany from the Department of Biological Sciences in 1982. During his long career, he served as a visiting senior scientist at NASA headquarters, was vice president for research at the Desert Research Institute in Nevada, served as provost at Idaho State University, and was president of the South Dakota School of Mines and Technology. He died from complications related to cancer at age 60 in 2012.

Professor Emeritus Bruce Parker recruited Dr. Wharton as a graduate student and Dr. George Simmons, Alumni Distinguished Professor Emeritus of Biological Sciences, to join his Antarctica field team. The team studied microorganisms living in ice-covered freshwater lakes in Antarctica’s Dry Valleys, again with an eye toward possible life on other planets.

“Bob was always a colleague and collaborator on the possibility of extraterrestrial life, which shows the high esteem other scientists had for Bob and his original and creative ideas,” Simmons said.
VT Recognitions

Virginia Tech honored three Exemplary Departments for 2016, Biological Sciences, Chemistry, and Physics, all in the College of Science. Presented annually since 1994, the University Exemplary Department or Program Awards program and ceremony are funded through the Office of the Provost and facilitated by the Center for Instructional Development and Educational Research. The awards recognize the work of programs and/or departments that maintain exemplary teaching and learning environments for students and faculty, and, in particular, accomplish this through collaborative, group efforts. For 2016, the awards theme recognized groups for developing and sustaining effective large-class instruction. Each department received a share of the $40,000 award for its achievements.

Liwu Li, Professor of Inflammation Biology and Immunology in the Department of Biological Sciences has received the university’s 2017 Alumni Award for Excellence in Research. Sponsored by the Virginia Tech Alumni Association, the award is presented annually to up to two Virginia Tech faculty members who have made outstanding research contributions. Dr. Li has made significant contributions to basic and translational life science through his development of new theories in the field of innate immunity. By applying these concepts to issues related to human health and inflammatory disease, he has addressed the potential power of adjusting the innate immune response as a method for treating human diseases, such as sepsis and atherosclerosis. He received the 2014 Outstanding Service Award in the Department of Biological Sciences and was recently awarded the position as vice president of the Inflammation Research Association. Dr. Li also has joint appointments in the School of Biomedical Engineering, the Virginia Tech-Carilion School of Medicine, and the Via College of Osteopathic Medicine. He has published close to 100 journal articles over the past 20 years and has been continuously funded by the National Institutes of Health research grants now totalling more than $8 million. Congratulations, Dr. Li!

Ann Stevens, Professor of Biological Sciences, has received the Graduate School’s 2017 Faculty Outstanding Mentor Award for the College of Science. Sponsored by the Graduate School, the new annual award recognizes excellence in mentoring graduate students. Students nominate recipients, and one professor from each college receives the award. Those nominating Stevens said she is known for patience, care, empathy, and high expectations. She helps students find opportunities to hone skills associated with their personal career goals and to develop excellence in their field. This includes teaching and funding opportunities students might not otherwise know about or seek. Her lab is a diverse and inclusive space, and she ensures that her students have opportunities to present their work, and to communicate it effectively, and to attend at least one conference each year. Dr. Stevens has also been recognized as a 2017 Scholarship of Teaching and Learning Award recipient. The award, which is administered by the VT Center for Instructional Development and Educational Research (CIDER), is designed to recognize faculty members from any discipline who have dedicated themselves to the pursuit of scholarship addressing higher education teaching and learning. Congratulations on both awards, Dr. Stevens!

Professor Khidir Hilu and Associate Professor Steve Melville have been selected by the College of Science as two of its three 2016-2017 Certificate of Teaching Excellence award winners. The award a significant recognition of their contributions to creative and impactful teaching, including in “Plants and Civilization” (Hilu) and “Pathogenic Microbiology” (Melville), and through mentoring of students in their research programs. Dr. Hilu has also been named the COS nominee for the Wine Award, which recognizes “a history of university teaching excellence.”

One student said of Dr. Hilu, “He beautifully executes the tactic of conversational learning, creating an inclusive and supportive community within the classroom through open discussion, helping to launch students into a lifelong love of learning, exploration, and discovery.” And one of Dr. Melville’s former students said, “His passion for teaching and helping, also his sense of humor made the class fun and enjoyable...(He) is an energetic teacher with a visible interest and excitement to teach the subject at hand.”

Congratulations to Drs. Hilu and Melville for this well-deserved recognition!
2017 Biological Sciences Awards and Scholarships

**Undergraduate Awards and Scholarships**

- **Biology Alumni Undergraduate Research Excellence Award** (Supported with discretionary funds contributed by former students, faculty and other donors; presented to outstanding undergraduate researchers): Natalie Bale
- **Arthur Buikema and M. Alison Galway Outstanding Senior Award** (Established by Alumni Distinguished Professor Emeritus Art Buikema and wife Alison Galway; presented to a graduating senior in recognition of academic achievement, leadership and service): Sieu Tran
- **Arthur Buikema and M. Alison Galway Undergraduate Research Award** (Established by Alumni Distinguished Professor Emeritus Art Buikema and wife Alison Galway; presented to outstanding undergraduate researchers): Stephanie Williams
- **Ralph E. Carlson Memorial Freshman Scholarship** (Established by the late Elizabeth Bailey Carlson in honor of her husband, Ralph E. Carlson, former professor in the Pamplin College of Business; awarded to first-year students in Biological Sciences with high academic achievement): Carrie Orey
- **Joe and Barbara Cowles Scholarship** (Established by Professor Emeritus of Biological Sciences and Former Department Head Joe Cowles and his wife and former Associate Director of the VT University Honors Program, Barbara Cowles; awarded to undergraduate students who are planning to enter the fields of nursing, teaching, professoriate, or research): Philip Stauffer
- **Rachael Hill Memorial Scholarship** (Established in honor of student Rachael Elizabeth Hill, who died during the tragic April 16, 2007 shooting at Virginia Tech; awarded to rising sophomore undergraduates with an high academic achievement and a record of University or community involvement): Craig McKenzie, Emily Meeks, and Muna Sigel
- **Robert Jones Undergraduate Research Excellence Award** (Supported with a fund established by former Professor of Biological Sciences and Department Head Robert H. Jones; awarded to outstanding undergraduate researchers in Biological Sciences): Philip Stauffer
- **Deborah Ayers Koller Scholarship** (Established by alumna Deborah Ayers Koller; awarded to Biological Sciences students with high academic achievement who are aspiring to pursue a career in research): Lauren Bano and Cayelan Smith
- **Stephen D. Lutz Scholarship** (Established by alumus Stephen Lutz; awarded to Biological Sciences students who are Virginia residents and have high academic achievement): Richard Cho
- **Stacey Smith Biology Research Excellence Award** (Established by alumna Stacey Smith; awarded to undergraduate Biological Sciences majors interested in pursuing a career in basic research who are currently engaged in undergraduate research): Anna McCluskey
- **I.D. Wilson Memorial Scholarship** (In honor of Dr. I.D. Wilson, former head of the Department of Biology; awarded to undergraduate Biological Sciences majors who are in their last year of study and plan on pursuing a career in veterinary medicine): Con-Ning Yen

**Graduate Awards and Scholarships**

- **Arthur Buikema and M. Alison Galway Graduate Student Teaching Award** (Established by Alumni Distinguished Professor Art Buikema and wife Alison Galway; awarded to graduate teaching assistants for excellence in instruction): Leah Novak (Walters Lab)
- **Ralph E. Carlson Memorial Scholarship in Ornithology** (Established by the late Elizabeth Bailey Carlson in honor of her husband, Ralph E. Carlson, former professor in the Pamplin College of Business; awarded to Biological Sciences students pursing careers in ornithology): Matt Aberle (Hawley Lab), Sam Lane (Sewall Lab), Ariel Leon (Hawley Lab), David Millican (Walters Lab), Leah Novak (Walters Lab), Ben Vernasco (Moore Lab), and Maya Wilson (Walters Lab)
- **Lewis Edward Goyette Graduate Fellowship** (Established by alumnus Edward Goyette in honor and recognition of his father, Lewis Edward Goyette; awarded to graduate students involved in the study of industrial microbiology): Floricel Gonzalez (Scharf Lab) and Jordan Mandl (Schubot Lab)
- **Noel Krieg Graduate Fellowship** (Established by a group of former students in honor of Alumni Distinguished Professor Emeritus Noel Krieg; awarded to an outstanding graduate student pursing research on microbial systems in biological sciences): Jonathan Doubek (Carey Lab)
- **John Palmer Memorial Scholarship** (Established by alumna Rhonda Leavenworth Johnson in honor of her uncle, John Gilbert Palmer, former Adjunct Professor of Biology; awarded to an outstanding graduate student in Biological Sciences): Sahni Moyers (Hawley Lab)
- **Robert and Marion Paterson Scholarship** (Established in honor of Robert Paterson, Professor and Department Head of Biological Sciences, and wife Marion; awarded to an outstanding graduate student in Biological Sciences): Aboozar Monavarfeshani (Fox Lab)
More Awards and Announcements

Lori Blanc, Assistant Professor of Practice of Biological Sciences and Director of the Da Vinci Living Learning Community, was honored with a 2017-2018 Excellence in Teaching First-Year Seminars Award from the National Resource Center for First-Year Experiences and Students in Transition. Da Vinci is an interactive-learning environment designed to help students succeed in first-year science courses. Congratulations, Dr. Blanc!

Jonathan Doubek, a Ph.D. student in the Carey Lab, was named the 2017 Outstanding Doctoral Student in the College of Science. His primary research interest is quantifying how multiple stressors affect lake planktonic communities, which have consequences for lake water quality and human use. Congratulations, Jonathan!

Laura Schoenle, who was just awarded her Ph.D. as a member of the Moore Lab, was named the 2017 Outstanding Interdisciplinary Graduate Student by the Graduate School. Her dissertation research investigated how environmental stressors affect reproduction in a model species, the red-winged blackbird. She will soon start a post-doctoral position at Hamilton College in Clinton, NY. Congratulations, Laura!

Kate Hamre, who recently defended her M.S. in the Carey Lab, received the 2017 William Preston Master’s Thesis Award, STEM Category. She studied the effects of physical and chemical environmental variables on phytoplankton population dynamics in western Virginia drinking water reservoirs. Congratulations, Kate!

Floricel Gonzalez, a graduate student in the Scharf Lab, has been awarded a highly-competitive Ford Foundation Predoctoral Scholarship. The award is given to “individuals with evidence of superior academic achievement who are committed to a career in teaching and research at the college or university level.” Congratulations, Floricel!

Sieu Tran, who graduated in May with B.S. degrees in Mathematics and Microbiology, was named the 2016-2017 College of Science Outstanding Senior. He plans to pursue a doctoral degree in integrated mathematics and application of models of genomics in medicine. Afterwards, he wants to conduct multidisciplinary research in immunology while mentoring students at the university level. Congratulations, Sieu!

Jessica Hernandez, a graduate student in the Moore Lab, has been awarded a prestigious Graduate Research Fellowship from the National Science Foundation. The award provides three years of financial support within a five-year fellowship period ($34,000 annual stipend and $12,000 cost-of-education allowance to the graduate institution). Congratulations, Jessica!

Carl Wepking, a graduate student in the Strickland Lab, received the 2016-17 College of Science’s Roundtable “Make-a-Difference Scholarship.” The Roundtable, which is a group of distinguished alumni who serve as advisors to the dean of the College of Science, established the scholarship to recognize graduate students who will make a significant difference to the college and the world outside of the university. Congratulations, Carl!
Department of Biological Sciences Annual Fund

One person can make a big difference!

The Department of Biological Sciences is the hub for life sciences research and teaching at Virginia Tech, with interdisciplinary connections that span the entire university.

Our faculty tackle the world’s most challenging problems through both basic and applied research, from human disease to the effects of global change. As one of the university’s largest departments, we were honored this year with the University Exemplary Department Award for our outstanding teaching efforts and innovative learning environments.

Your support is critical to our future success. Contributions from our alumni, parents and friends help our many deserving students, provide state-of-the-art facilities, expand research activities, and allow our students explore a wide array of career opportunities. Gifts made without restriction allow departmental leaders to respond to opportunities immediately and to allocate resources where they can have the greatest impact.

When you receive your College of Science Annual Fund letter or phone call, please earmark your support for the Department of Biological Sciences Annual Fund. Simply make a notation on the gift card or let the caller know that you want to direct your donation to Biological Sciences. To make an immediate contribution, you may visit the university’s web site at givingto.vt.edu or contact the Office of Gift Accounting at (800) 533-1144.

For more information or to learn about other ways to support the College of Science, please contact Wade Stokes, Assistant Dean of Advancement, at (540) 231-4033 or lwstokes@vt.edu. We thank you in advance for your support!