

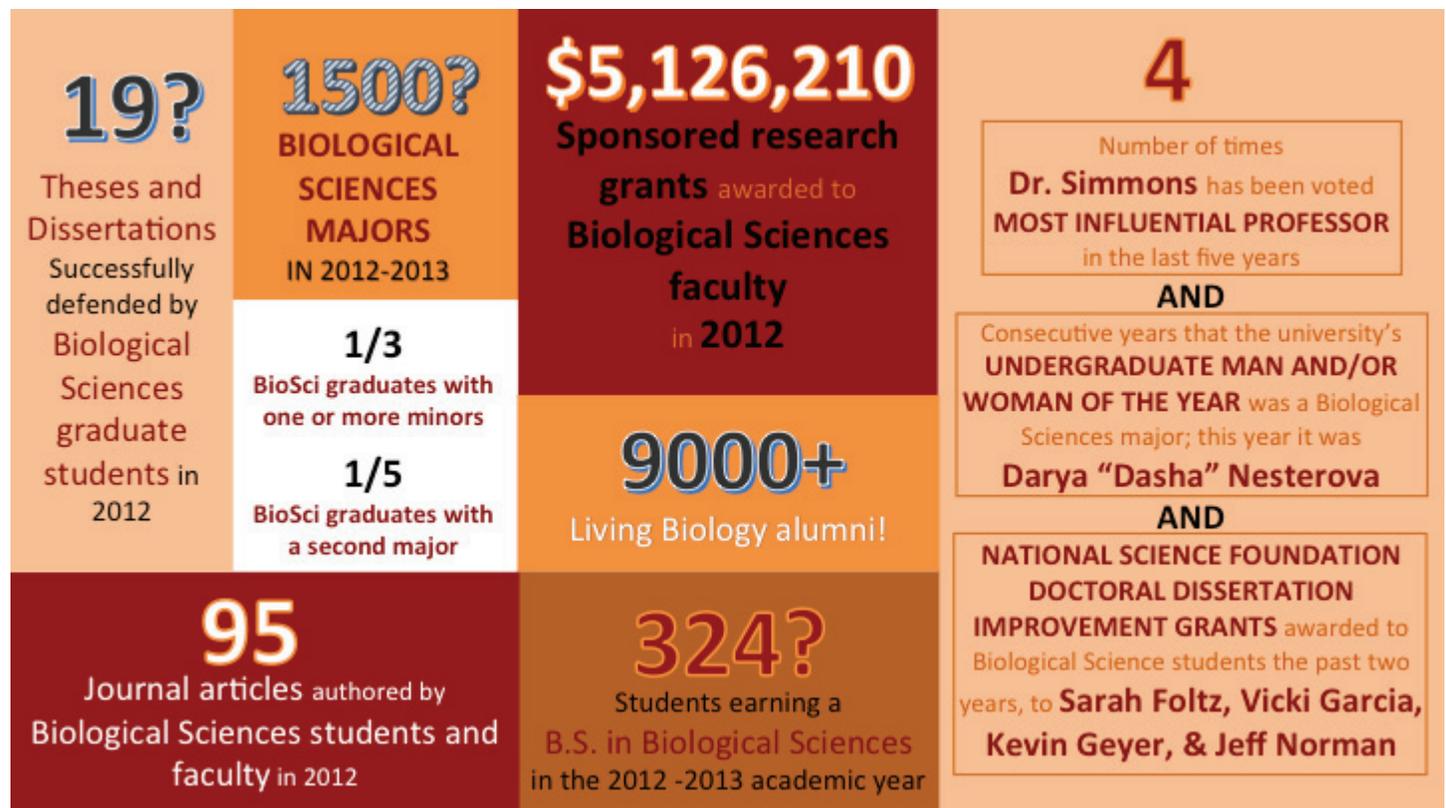
A Message from Our Department Head, Dr. Brenda S.J. Winkel

With another academic year behind us and the class of 2013 moving on new adventures, it is remarkable to see how much has happened in a single short year, some of which you will read about in this Newsletter and also reflected in the figure below. In addition to our many graduating seniors, we have seen 15 students earn M.S. or Ph.D. degrees in our research labs this past year. We also welcomed two new assistant professors to the department in Fall 2012, Drs. **Joel McGlothlin** (Molecular Ecology) and **Mike Strickland** (Microbial Ecology), and three more will be joining us in the coming year, Drs. **Cayelan Carey** (Ecosystems Ecology) and **Zack Nimchuck** (Plant Cell and Molecular Biology) in August and Dr. **Silke Haufe** (Molecular Cell Biology) in January. We were also joined in October by Associate Professor **Mike Fox** (Molecular Neuroscience), who has a primary appointment at the VT Carilion Research Institute in Roanoke. Stay tuned for more on the research programs of these six new faculty members in future newsletters!

Although securing research funding continues to require increasingly more time and effort, many of our faculty saw new funding for their research programs from federal agencies over the past year, a sign that they are competing at the top level of their fields. These newly-funded projects span the disciplinary areas of the department and include grants from the National Science Foundation to **Dr. Iulia Lazar** and collaborators for \$781,500 to develop a "Microfluidic platform for accurate sampling of biological signaling events," and to **Dr. Steve Melville** in the amount of \$305,521 for "Molecular analysis of the assembly of bacterial type IV pili." The National Institutes of Health awarded grants to **Dr. Jianhua Xing** for \$148,544 to conduct research "Examining the bacterial flagellar motor switching dynamics," to **Dr. Dana Hawley** and colleagues for \$2,256,953 to identify "Ecological drivers of virulence evolution in an emerging avian pathogen," and to **Dr. Liwu Li** for \$1,953,000 to study the "Innate modulation of macrophage homeostasis." And **Dr. Jeff Walters** has a new \$204,763 grant from the Department of Defense to study the "Impacts of climate change on management of red-cockaded woodpeckers at Marine Corps Base Camp Lejeune."

As you will see on pages 6 and 7, a number of our students and faculty were recognized with awards at the college, university, and national levels, including Professor **Jeff Walters**, who received one of Virginia Tech's highest honors for achievement in research, the Alumni Award for Excellence in Research. The bottom line is that the department continues to thrive and our students, postdocs, staff, faculty - and our 9000+ alumni - continue to contribute to learning and scholarship in diverse and highly meaningful ways!

BIOLOGICAL SCIENCES BY THE NUMBERS



This newsletter was created by Valerie Sutherland, Program Support Technician for the Department of Biological Sciences. We welcome comments and items of interest for future newsletters. Please contact Valerie Sutherland (vsutherl@vt.edu) via e-mail, or write to us at the Department of Biological Sciences, Mail Code 0406, Virginia Tech, Blacksburg, VA 24061.

Walters Receives Alumni Award for Excellence in Research



Jeffrey Walters, Harold H. Bailey Professor of Biological Sciences in the College of Science at Virginia Tech, has received the university's 2013 Alumni Award for Excellence in Research.

Sponsored by the Virginia Tech Alumni Association, the Alumni Award for Excellence in Research is presented annually to as many as two Virginia Tech faculty members who have made outstanding research contributions. Alumni, students, faculty, and staff may nominate candidates. Each recipient is awarded \$2,000.

A member of the Virginia Tech community since 1994, Walters has investigated the behavior, ecology, population biology, and conservation of numerous animal species all over the world, including Africa, South America, Australia, and the Pacific Islands.

He is best known for his work with the endangered red-cockaded woodpecker in the longleaf pine ecosystems of the southeastern United States. The preservation of this species has been one of the largest conservation issues in the Southeast over the past 30 years due to the fact that its protection affects millions of acres of public and private land. Based on his research, Walters derived a new management strategy that resulted in sustained recovery of the species, while at the same time reduced conflict with such land uses as military training and timber harvest.

In recognition of his work with the red-cockaded woodpecker, Walters received the American Ornithologists' Union's highest research honor, the Elliott Coues Award, in 2002. The award citation stated, "To no small extent, whatever success is achieved in the conservation of this remarkable species will be due to Walters' insightful and wide-ranging work."

"Jeff's unique contribution to life science is his ability to discover, evaluate, and apply basic scientific knowledge to solve complex problems in conservation biology," said Brenda Winkel, head of the Department of Biological Sciences.

Walters has authored or co-authored more than 125 publications and has generated more than \$17 million in outside funding for his research from a wide variety of sources, such as the National Science Foundation, the Department of Defense, and the United States Forest Service. He is sought after by government agencies and nonprofit conservation groups to provide expertise to high-profile conservation issues.

Walters received a bachelor's degree from West Virginia University and a Ph.D. from the University of Chicago.

Studying Molecules That Regulate the Body's Circadian Rhythms

By Marlene Cimos of the National Science Foundation

Most often, people associate circadian rhythms with the symptoms of jet lag that occur after crossing several time zones. Circadian rhythms, which get their cues from light and darkness, can change sleep-wake cycles, hormone secretion, body temperature and other bodily functions.

When disrupted, they can have important health consequences. In addition to the temporary fatigue and disorientation of jet lag, abnormal circadian rhythms have been linked to certain sleep problems, depression, heart attacks, alcoholism, bipolar disorder and seasonal affective disorder.

But do they raise the risk of cancer?

It's an intriguing question, and one that fascinates **Carla Finkielstein**, Associate Professor of Biological Sciences at VirginiaTech. She is studying the molecules that regulate the body's circadian rhythms, trying to find out whether environmental conditions that go awry, such as unscheduled exposure to light, can cause them to change their signals to the body's cells in ways that cause the cells to divide and grow out of control.

"A circadian molecule could be saying 'go, go, go' in a cell and therefore signaling for proliferation when it should be saying 'stop,' simply because you are exposed to light when you shouldn't be," she says.

Finkielstein specifically is interested in breast cancer among women who work night shifts, such as nurses. A number of epidemiological studies have shown a relationship between such women and an increased risk of breast cancer, suggesting that the disruption of circadian rhythms, and its resulting impact on hormones, could predispose women to developing the disease.

"To be sure, there are certain risks associated with developing breast cancer, but 90 percent of breast cancer cases are sporadic," she says. "When it's sporadic, it catches you totally off guard. My question is: Is there any way we can prevent a sporadic form of breast cancer from arising?"

Finkielstein's work ultimately could have important implications for the prevention of breast cancer, as well as for treatment options, in particular, the timing of drug delivery. "It could offer insights into the best time of the day to provide therapy, to increase its efficiency and reduce side effects," she says. "Suppose it's more effective if a person receives it in the late afternoon, instead of early morning, and you might not have to deliver such high doses. Then, you will have the same effect with a lower dose, which could decrease those often brutal side effects that lead patients to quit some therapies."

The significance for prevention lies in "uncovering functionally relevant, circadian-controlled signaling mechanisms in the cell," she says. "[This] will result in more effective screening strategies of prevention value...perhaps we could develop a test that could analyze a person's molecular profile in a way that could identify abnormal or unexpected changes in circadian-controlled signals that correlate with disease development. Imagine taking night workers and running this test once a year, for example.

(continued on page 4)



A Sabbatical in Ecuador

By Ignacio Moore, Associate Professor of Biological Sciences



A sabbatical leave is one of the great benefits of being a university professor. Formally the sabbatical is called a research leave and it typically encompasses a period of 6 or 12 months. The sabbatical is an opportunity to visit a different lab, initiate a new line of research, learn new techniques, etc. For most of us, it focuses around getting back to the reason we started in this profession in the first place, doing research! Our typical day-to-day work often focuses on teaching and running our labs and we forget how to do actual research ourselves. A sabbatical helps us get back to being a researcher.

For our sabbatical, we (**Lisa Belden** (Associate Professor of Biological Sciences), our kids, and myself) will be moving to Ecuador. Why Ecuador? I have been studying the behavioral ecology of tropical birds in Ecuador since 2000. Since coming to VT in 2004, in addition to this research program, I have led four study abroad classes to Ecuador. I currently have two distinct lines of ongoing research in Ecuador, one on reproduction in rufous-collared sparrows and one on social networks in wire-tailed manakins. So for me, Ecuador was an obvious choice of places to spend an extended period of time. Lisa has been to Ecuador a couple of times. In fact, we spent our honeymoon in Ecuador! She has identified

research opportunities and collaborators in the country that will make her sabbatical productive for her as well. Finally, from a personal perspective it will be an opportunity for us and our kids to learn Spanish, immerse ourselves in another culture, and gain some amazing experiences.

During our time in Ecuador we will primarily be living in the town of Mindo, just a couple of hours northwest of Quito. Mindo is a small town of ~3000 people and is located in a hotspot for biodiversity being at mid-elevation (1500m) on the western slope of the Andes mountains. In fact, Mindo is one of the places bird watchers first go when they visit the country. While most famous for the hummingbirds (they buzz around the feeders like bees), the area is home to literally hundreds of species of birds. Not only are the birds incredible, but there are amazing amphibians as well. Both Lisa and I have field projects we will conduct in the immediate area.

It should be noted that Ecuador is one of the most biodiverse places on earth and thus a definitive place to work for those of us interested in biodiversity. For example, roughly 10% of the world's birds can be found there and the country is only the size of Utah. New species of vertebrates are being identified every year, including lots of frogs. Even within the many known species, there are more than ample opportunities to make new discoveries.

While in Ecuador, we will be associated with the Universidad San Francisco de Quito (USFQ) as visiting scholars. USFQ is the premier university in Ecuador and unique among Latin American universities in offering a liberal arts education. They also have a very active research program and their faculty are among the most productive in the country. In addition to their main campus in Quito, USFQ has field stations in the Amazon basin (Tiputini Biological Station, TBS) and the Galapagos (GAIAS). I have visited both stations and they are very impressive. My project on manakins occurs at TBS and I have taken VT students on study abroad programs to GAIAS.

As part of our sabbatical, we are arranging to spend time at GAIAS teaching as part of their study abroad program in the Galapagos. This program brings students from all over the world to spend a semester in the Galapagos learning from professors who teach for 3 weeks at a time. We are planning to offer a course in Ecology and Evolution in the Galapagos. As part of the program we will also teach a course for local islanders. There are no formal universities in the Galapagos so this program is one of the few chances the local students have for higher education. For a field biologist, teaching and researching in the Galapagos is like a dream vacation!

Virginia Tech has a long-standing student exchange program with USFQ and we intend to build on the partnership. In addition, to undergraduates, we would like to encourage graduate student and faculty exchanges. There are great opportunities for VT people to conduct research in Ecuador and associations with USFQ will make that possible.

Overall we are looking forward to our sabbatical. Researching and teaching in a new environment will bring new ideas and perspectives that will be rewarding for our existing research programs as well as future endeavors and teaching.



Biology Graduate Student Association (BGSa) Updates

The Biology Graduate Student Association (BGSa) would like to thank all of its members for another fantastic year. Because of member involvement, all BGSa-supported activities were a huge success! In particular, we would like to thank the outgoing executive board members for all of their time and hard work: Co-presidents **Michelle Jusino** and **Kevin Geyer**; Treasurer **Ben Webb**; Secretary **Jeff Norman**; and GSA Representatives **Michael Painter** and **Laura Schoenle Thomas**.

We would also like to welcome our incoming 2013-2014 executive board members, and wish them the best of luck in the coming year: President **Kevin Geyer**; Vice President **Sahnzi Moyers**; Treasurer **Ben Webb**; Secretary **Hardik Zatakia**; and GSA Representatives **Laura Schoenle Thomas** and **Camilo Escallon**.

Over the past year the BGSa has maintained its involvement with a number of key departmental activities, fulfilling our stated purpose to "create a united, cohesive, collaborative, and friendly community" particularly among the Biological Sciences graduate students. In 2012-2013, BGSa members orchestrated numerous coffee and donut/bagel socials in both Derring Hall and LS1, helped to organize the weekly EEB seminar series, held numerous social events for graduate students, hosted two extremely successful departmental picnics at both the University Club and Price House Nature Center, volunteered at the Virginia Tech Big Event, coordinated the sale of departmental clothing primarily to graduating seniors, and served on numerous departmental service committees.

During the past year, the BGSa also became closely involved with the department's Research Day, held early in spring semester. Much time and effort was dedicated to a venue change from previous years to the Graduate Life Center, as well as improving on the schedule of day's events, speaker selection, and evening banquet. BGSa members also provided the majority of the muscle-work required throughout the day to make this the successful event it was.

We look forward to remaining closely involved with all of these activities and continuing to serve as a link between graduate students and university faculty/staff.



The 2013 Department Spring Picnic, sponsored by the BGSa, was held at the Price House Nature Center.

Studying Molecules... *continued from page 2*

"We expect that control over circadian habits will be an effective and cost-efficient approach for reducing cancer risk and for modifying the biological behavior of tumors," she adds.

Finkelstein is conducting her research under a National Science Foundation (NSF) Faculty Early Career Development (CAREER) award, which she received in 2009 as part of NSF's American Recovery and Reinvestment Act. The award supports junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education, and the integration of education and research within the context of the mission of their organization. NSF is funding her work with about \$1.1 million over five years.

In the lab, Finkelstein is using genetically engineered human molecules to study the behavior of the genes that control our circadian rhythms.

"In one of our projects, we incorporate circadian molecules into cells and look at the genes that are turned on and off based on unscheduled levels of expression of these molecules," she says. "We check on how cells behave as a result of this abnormal condition, and what the long-term consequences are of such exposure for cell growth and division."

She hopes her research also will provide a molecular underpinning for those working in the circadian field of chronobiology.

"This field is populated by observational studies, but lacks a true molecular basis," she says. "We are providing other scientists with a battery of molecular connections that can explain many of their observations. Hopefully our findings can be incorporated in many clinical trials to help improve the efficiency of current therapies."

For those women identified as having an increased risk, "possibly you could change your work schedule, and it may prevent sporadic forms of cancer, such as breast cancer, from developing," she says. "You might be able to get screened for circadian-related abnormalities and find out that it's time to switch from a night shift to a day shift. It might not solve all cases of breast cancer, but it might prevent some from arising and perhaps we could see a drastic reduction."

The educational component of her grant, which she runs with collaborator Erin Dolan, an associate professor of biochemistry and molecular biology at the University of Georgia, aims to promote learning and career development of youngsters at the high-school level from underserved rural and urban areas of Virginia.

The six-week program involves an international component, where students from Virginia spend three weeks in Argentina, Finkelstein's native country, attending classes at Otto Krause High School, one of the elite technical schools in the country. While there, the program provides intense day-long training in chemistry from 7:30 a.m. until 6 p.m. "Before you become a molecular biologist, you need to be a chemist," Finkelstein says.

The students also engage in social activities, as well as visit historical sites and various universities. "Our program encourages students to pursue careers in science, experience professional growth, explore a particular academic interest and understand and appreciate different cultures," Finkelstein says.

Upon their return, the students spend an additional three weeks working in Finkelstein's lab, studying specific areas of molecular biology by rotating through several different "stations." There, they learn how to manipulate DNA, synthesize bacterial proteins, microscopy, bioinformatic analysis of genomic sequences, and how to work with animals, in their case, the African frog *Xenopus laevis*.

Additionally, the Argentine school sends students in February to Finkelstein's lab at Virginia Tech.

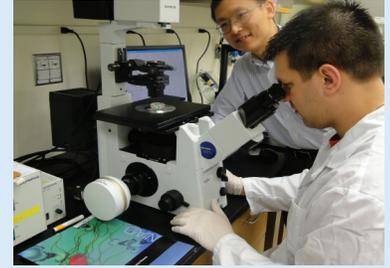
"This happens just around the time we are selecting the scholars from Virginia, so they get to meet some of the Argentinean kids they will see again when they travel abroad, which is very cool for them," Finkelstein says. "The outcome of this program has been amazing so far, students from both groups enrolled in higher education, all of them in some form of natural science studies, and they have a terrific experience traveling abroad."

More information on Dr. Finkelstein's research and teaching is available at <http://www.biol.vt.edu/faculty/finkelstein>.

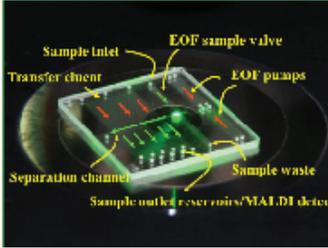
Major New Research Grants in the Department

Title: Innate Modulation of Macrophage Homeostasis
Principal Investigator: Liwu Li, Professor of Biological Sciences
Type: NIH R-01: National Heart, Lung and Blood Institute
Total Funding: \$399,000

Altered macrophage homeostasis under low grade inflammatory conditions underlies the initiation and progression of chronic inflammatory diseases such as atherosclerosis. The goal of this project is to define the mechanisms responsible for the suppression of cholesterol export from innate immune macrophages. The role of a novel adaptor molecule Tollip during this key process will be examined and revealed. This project will provide novel insight into low grade inflammation, and also reveal potential molecular target for the treatment of chronic inflammatory diseases.



Dr. Liwu Li and former graduate student Trevor Glaros in the lab



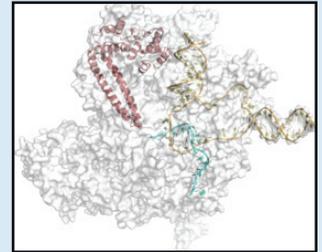
Title: Microfluidic Platform for Accurate Sampling of Biological Signaling Events
Principal Investigator: Iuliana Lazar, Associate Professor of Biological Sciences
Type: NSF: Division of Biological Infrastructure
Total Funding: \$304,099

Research in Iuliana Lazar's laboratory is focused on developing advanced mass spectrometry and micro/nano-fluidic technologies to enhance our understanding of fundamental biological process, including the molecular mechanisms that drive breast cancer cell progression through the cell cycle. The group was recently awarded a new NSF grant, "Microfluidic Platform for Accurate Sampling of Biological Signaling Events," aimed at developing a microfluidic platform that will facilitate the study of rapid phosphorylation events in cells. Reversible protein phosphorylation is a key regulatory mechanism that occurs on a very short time scale, from second to minutes, and that is often disrupted in diseases such as cancer, inflammation, diabetes and metabolic disorders. The objective of this research is to develop a versatile microfluidic device that will enable

the "molecular visualization" of extremely fast cellular phosphorylation events and ultimately lead to an improved understanding of biological signal transduction and cell regulatory mechanisms. As a model system, phosphorylation dynamics in the epidermal growth factor receptor (EGFR)/HER family of early signaling pathways in SK-BR-3 breast cancer cells, will be explored. The proposed microfluidic device will build on earlier designs that were previously patented in the Lazar laboratory (Figure X), and is expected to improve throughput ~10-fold while reducing reagent consumption ~100-fold and analysis costs ~10-100-fold. The Lazar lab will also work with collaborators Elankumaran Subbiah and Jianhua Xing to test the use of the new microfluidic device for investigating the innate immune responses to Newcastle disease virus infection and to develop computational models for the newly-generated data.

Title: Regulation of the *P. Aeruginosa* Type III Secretion System by the Multifaceted Tran
Principal Investigator: Florian Schubot, Assistant Professor of Biological Sciences
Type: NIH R-21: National Institute of Allergy and Infectious Diseases
Total Funding: \$176,766

The bacterium *Pseudomonas aeruginosa* is a major cause of hospital-associated infections and the leading cause of death for people with cystic fibrosis. Treatment is often complicated because the bacterium displays a high level of antibiotic resistance. The type III secretion system, which the Schubot lab studying, is a key facilitator of *P. aeruginosa* infections. They aim to determine the central mechanism of how this system is regulated by the interactions of an intriguing transcription regulator, ExsD, with RNA polymerase and the transcription factor ExsA. This understanding will enable the development of new therapeutic options for the treatment of *P. aeruginosa*-associated infections.



Model for the complex of the *Pseudomonas aeruginosa* virulence protein ExsD with RNA polymerase



Spring Visit by Biology Alumni

In April 2013, four students who earned their Ph.D.'s with University Distinguished Professor **John Cairns** in the early 70's returned to Blacksburg to visit Dr. Cairns and stopped by Derring Hall to say hello. They are (L to R):]

Guy Lanza ('72), Professor of Microbiology and Director of Environmental Science Program, Univ. Massachusetts

Richard Sparks ('71), Research Affiliate, Univ. Illinois and former Director of Research at National Great Rivers Research and Education Center

Kenneth Dickson ('71), Regents Professor Emeritus of Biological Sciences, Univ. North Texas

Thomas Waller ('71), Regents Professor Emeritus of Biological Sciences, Univ. North Texas

2013 Department of Biological Sciences Awards and Scholarships

Undergraduate Awards and Scholarships

Biology Alumni Undergraduate Research Excellence Award (need description): Albert Hinman

Buikema Outstanding Senior Award (Established by Alumni Distinguished Professor Art Buikema; presented to a graduating senior in recognition of academic achievement, leadership and service): **Grace Mulholland**

Buikema Undergraduate Research Award (Established by Alumni Distinguished Professor Art Buikema; presented to outstanding undergraduate researchers): **Aaron Mattingly**

Ralph E. Carlson Memorial Scholarship in Biology (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): **Heather Lafrance**

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 pursuing careers in ornithology): **Sydney Robinett**

Joe and Barbara Cowles Scholarship (Established by Professor Emeritus of Biological Sciences and Former Department Head Joseph Cowles and his wife Barbara Cowles, former Associate Director of the VT University Honors Program; awarded to undergraduate students who are planning to enter the fields of nursing, teaching, professoriate, or research): **Meredith Swartwout**

Hendricks Undergraduate Excellence Award (Established by Associate Professor Emeritus Albert Hendricks and wife Sharon; awarded to outstanding undergraduate researchers): **Jaimin Patel, Michael Plazak**

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): **William Coffey and Bishal Paudel**

Robert Jones Undergraduate Research Excellence Award (Established by former Professor of Biological Sciences and Department Head Robert H. Jones; awarded to outstanding undergraduate researchers in biological sciences): **Spencer Cesar**

Deborah Ayers Koller Scholarship (Established by alumna Deborah Ayers Koller; awarded to biological sciences students with high academic achievement who are aspiring for a research career): **Kelly Drews**

Stephen D. Lutz Scholarship (Established by alumni Stephen Lutz; awarded to biological sciences students who are Virginia residents and have high academic achievement): **Vraj Patel**

Stacey Smith Biology Research Excellence Award (Established by alumna Stacey Smith; awarded to undergraduate biology majors interested in pursuing a career in basic research who are currently engaged in undergraduate research): **Jenna Sackenheim**

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): **Jessie Gibbons**

Graduate Awards and Scholarships

Buikema Graduate Student Teaching Award (Established by Alumni Distinguished Professor Art Buikema; awarded to graduate teaching assistants for excellence in instruction): **Bonnie Fairbanks**

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 and active supporter of the University; awarded to biological sciences students pursuing careers in ornithology): **Camilo Escallon, Sarah Foltz, Vicki Garcia, Sahnzi Moyers, Laura Scholenle, and Michelle Jusino**

Lewis Edward Goyette Graduate Fellowship (Established by alumni Edward Goyette in honor and recognition of his father, Lewis Edward Goyette; awarded to graduate students involved in the study of industrial microbiology): **Casey Bernhards, Hualan Liu, Kayla Pennerman, and Benjamin Webb**

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): **Kevin Geyer**

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): **Joshua Nicholson**

2013 Faculty and Staff Awards

Outstanding Research Award: **Lisa Belden** and **Jack Webster**
 Outstanding Service Award: **Katherine Akers** and **Ann Stevens**
 Outstanding Teaching Award: **Klaus Elgert** and **Brent Opell**
 Outstanding Undergraduate Advisor: **David Popham**
 Outstanding Undergraduate Research Mentor: **Birgit Scharf**
 Outstanding Graduate Advisor: **Jeb Barrett**
 Class of 2013 Most Influential Professor: **George Simmons**



Belden



Webster



Akers



Stevens



Elgert



Opell



Popham



Scharf



Barrett



Simmons

Julia Button, a Biological Sciences/Biochemistry undergraduate, has been named a 2013 Goldwater Scholar. She is an undergraduate researcher in **Liwu Li's** lab.

Carla Tyler, Microbiology Lab Specialist, was named Virginia Tech Staff Member of the Week in January 2013.

Associate Professor **Carla Finkelstein** was named Virginia Tech Scholar of the Week in May 2013.



Jennifer Wyderko, who defended her M.S. in the Belden Lab this spring, was named the 2013 College of Science Outstanding Masters Student of the Year. Her research explores the factors that affect the distribution of *Metagonimoies oregonensis* trematodes in *Plethodon* salamander species. She received her B.S. in Biological Sciences (magna cum laude) from Virginia Tech in 2011, and started out working in the Belden Lab as an undergraduate researcher. Congratulations, Jennie!

Stephen Melville, Associate Professor of Biological Sciences, was the chair of the 2013 Mid-Atlantic Microbial Pathogenesis Meeting held in January 2013 at the Wintergreen Resort in Virginia.

Michael Friedlander, Executive Director of the Virginia Carilion Research Institute, Senior Dean of Research at the VT Carilion School of Medicine, and Professor of Biological Sciences, has been named Associate Provost for Health Sciences at Virginia Tech. In this newly created position, he will be responsible for formalizing the creation of a Faculty of Health Sciences and guiding the creation of a university-wide graduate program focused on translational biology, medicine, and health.



Darya Nesterova, a senior majoring in Biological Sciences, was named the 2013 VT Undergraduate Woman of the Year. Darya is a member of the University Honors Program and has conducted undergraduate research at VBI. She has volunteered in Peru, helping set up free medical clinics, and was awarded a Gough Scholarship to study the impact of culture on medical practice in Russia and Uzbekistan. She serves as president of the American Medical Student, volunteers at the NRV Hospice, participated in the VT Hospital Preceptorship Program, and was part of the VA United Regional iGEM Synthetic Biology Team. Congratulations, Darya!

10th Annual Biological Sciences Research Day Winners

The department's 10th Annual Research Day was held on February 16, 2013. The event provides an opportunity for graduate students to present their research as posters and oral presentations. This year's award winners are listed below. Congratulations to all!

Best Oral Presentation: **Bonnie Fairbanks** (Hawley Lab)

Best Poster (Microbiology/Immunology): **Cory Bernhards** (Schubot Lab)

Best Poster (Molecular, Cell, Dev., & Computational): **Josh Nicholson** (Cimini lab)

Best Poster (Ecology, Evolution, & Behavior): **Sarah Stellwagen** (Opell Lab)

Olga Milenkaya (Walters Lab) received the Best Student Oral Presentation Award at the 2013 Annual Meeting of the Wilson Ornithological Society held in March in Williamsburg, VA.

Starting in fall 2013, research scientist **Lori Blanc** (Walters Lab) will serve as Director of VT's Da Vinci Living Learning Community, an interactive learning environment designed to help students succeed in first-year sciences courses.

Graduate student **Bianca Baker** (Li Lab) won a First Place Poster Award at the Emory University STEM Research and Career Symposium held in April in Atlanta, GA.

Biological Sciences major **Jancarla Ocampo**, an undergraduate researcher in the Belden Lab, won a First Place Poster Award at the Sixth Annual VA-NC Alliane for Minority Participation Symposium held in April at VCU in Richmond, VA.

Michelle Jusino (Walters Lab) won the Best Ph.D. Presentation Award at the VA Forest Resources and Environmental Conservation Graduate Research Symposium held in April at Virginia Tech.

Bin He (Cimini Lab) won a Third Place Poster Award at the Integrated Life Sciences Building Second Annual Research Symposium held in May at the VT Corporate Research Center in Blacksburg.

Ph.D. students **Sarah Foltz** (Moore Lab) and **Vicki Garcia** (Walters Lab) have been awarded NSF Doctoral Dissertation Improvement Grants.



Grace Mullholland, who graduated in May with degrees in Biological Sciences and Psychology, was named the College of Science 2013 Outstanding Graduating Senior and the 2013 Buikema Outstanding Senior. Grace was a member of the University Honors Program and a Presidential Global Scholar. During her time at VT, she conducted research in the Biological Sciences, Entomology, and Physics department, served as an undergraduate TA, and was a Global Health Leadership Intern with the Edward Via College of Osteopathic Medicine.

She also served as an academic tutor, an HIV/AIDS community volunteer in East Africa, a pediatric medicine volunteer in El Salvador, and a hurricane relief volunteer. She also participated in several local and university service organizations. Congratulations, Grace!

New Interdisciplinary Graduate Education Program

The Interfaces of Global Change (IGC) Program is an exciting new interdisciplinary graduate education program designed to address the multidimensional aspects of global change. Funded by the Virginia Tech Graduate School, this program is one of several Interdisciplinary Graduate Education Programs (IGEP's) on campus that address a major fundamental problem or complex societal issue requiring an interdisciplinary team of scholars. The goals of the IGC-IGEP are to provide each trainee with a broad perspective on:

- How major global changes interact to impact biodiversity and environmental health
- The societal causes and consequences of these ecological problems
- The role that science can play in resolving these issues by informing sound environmental policy

Biological Sciences faculty members **Jeb Barrett**, **Lisa Belden**, **Dana Hawley**, **Ignacio Moore**, and **Jeff Walters** and adjunct **Deborah Brosnan** are among the sixteen Core Faculty members associated with the program.

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 Permit No.28



Assistant Professor of Biological Sciences **Jianhua Xing** is chair of the International Conference on Computational Cell Biology which will take place in Blacksburg this August. Virginia Tech is actively developing its Computational Cell Biology program and a related Systems Biology undergraduate major. The conference will provide a great opportunity for local and external researchers to exchange ideas both on research and education.

The conference will serve as a platform for the exchanging of ideas and synthesis of collaborations between experimentalists and theoreticians from a broad spectrum of disciplines and career stages. This conference has been designed to highlight the interplay between cutting-edge biomathematical approaches and experimental techniques, to identify future directions in the field of computational cell biology, and to provide a rare opportunity for young researchers to interact with several leading scientists. It will also feature a special forum to highlight current developments and challenges in interdisciplinary undergraduate and graduate education, both at Virginia Tech and across the nation, including the genesis of new interdisciplinary majors intended to prepare students for the modern research landscape.

The event is also timed to celebrate University Distinguished Professor John Tyson's ___ years of work in the field of Computational Biology.

For more information on the conference, visit the website at <http://www.cpe.vt.edu/ccb/index.html>.

Biological Sciences T-shirts and sweatshirts available!

Proceeds benefit the Biological Sciences Graduate Student Association (the BGSA).

Please contact Sahnzi Moyers (sahnzi@vt.edu) to arrange purchase or your t-shirt or sweatshirt today!



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