



Elizabethtown College

Biology Newsletter

Fall 2008

Scholarship and Creative Arts Day Huge Success



Student "staphers" from the Biology and Chemistry Departments pose with Bill Nye during his visit to the College in April

The first annual Scholarship and Creative Arts Day (SCAD) was held on April 22, 2008 (Earth Day). This day has been set aside for the College community to gather and celebrate the accomplishments of our students. The College was excited when Dr. Jane Cavender, Professor of Biology and Chair of the SCAD planning committee announced that the keynote speaker for the day would be the well-known scientist *Bill Nye the Science Guy*. Many of the students remember him from their childhood when he had a popular television show which aired on PBS from 1993 to 1997. Twenty-one Biology students presented posters displaying the research they are doing with their faculty mentors. Biology students who made presentations include: Wilmirlandy Besson, Stephanie Bireley, Erin Doyle, Lindsey Evans, Rebecca Holler, Stephen Hurst, Taylor Jones, Matthew Kochuba, Tara Lauer, Jeff Mastrangelo, Jason Matakas, Angela Mitchell, Jasmine Myers, Michael Nelson, Peter Northrop, Janet Richards, Suren Rajakaruna, Michele Saul, Lisa Sether, Ariana Tan and Michael Wagner.

From the Chair...



Dr. Thomas E. Murray

Greetings Biology Alumni!

On behalf of the students and faculty, I hope this newsletter finds you well. Another year is underway and there are many exciting updates from Elizabethtown. In the past year, student research was highlighted in the first ever Scholarship and Creative Arts Day. As you'll read in the pages that follow, our students are pursuing internships and research projects not only with our faculty, but around the country. In one longer profile, Derek Faust '10 describes his spring semester in the Turks and Caicos Islands.

This fall we welcomed Dr. David Bowne to the department. Dr. Bowne brings his expertise in spatial analysis and conservation ecology to the department. Dave replaces Professor Ron Laughlin who retired in May after 40 years of service to our students. And while Ron has retired, he has not stopped teaching; we are happy to have both Ron and Jim Dively back this fall teaching introductory labs.

Congratulations to Dr. Debra Wohl who was awarded a \$197,000 grant from the National Institutes of Health for her research investigating the linkage between antibiotics in mothers giving birth and eczema in their children. In a time of extremely tight competition for federal grants, Deb's success is outstanding. Congratulations also to Erin Fisher '08 who was awarded a NCAA Post Graduate Scholarship acknowledging her successful academic and athletic career at Elizabethtown.

And lastly, congratulations to Dr. Connie Chronister '81 who is this year's recipient of the Dr. Charles S. Farver-Apgar and Dr. Bessie D. Apgar Biology Alumni award recognizing her achievements in the field of optometry.

Many of our students' achievements would be impossible without the continuing support of our alumni, and thanks to all of you who have made not only our new home in the Lyet Wing for Biological Sciences a reality, but to all of you who help provide support in other ways including helping to fund our summer student research program. I look forward to seeing many of you at Homecoming.

TE Murray



Professor Laughlin was presented with a gift by Kristen Taddonio, '09 on behalf of the biology students at the Annual Biology Banquet

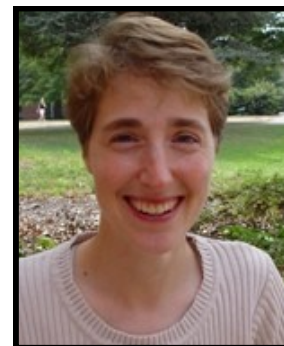
A word of thanks....

On April 12, 2008, The Biology Department celebrated the career of a dedicated faculty member *Professor Ron Laughlin* who retired after the spring semester. Ron joined the Biology Department in 1968 and during the past forty years, he taught thousands of students in courses including Plant Taxonomy, General Ecology, the Plants and People First Year Seminar, and others. Countless students also benefitted through the years from his counsel and advice.

His service to the Department includes twelve years as Department Chair. He helped establish both the Forestry Program and the Environmental Science Major and has lovingly maintained the greenhouse collection throughout his career. Ron's service and leadership to the Biology Department, the College and generations of our students is most gratefully appreciated.

NIH Grant Awarded

Dr. Debra Wohl, in collaboration with William Curry, M.D. of Hershey Medical Center, was awarded a \$197,000 grant by the National Institute of Health. The study, titled "Do Intravenous Antibiotics Administered during Delivery Affect the Development of Infantile Atopic Dermatitis," is designed to determine whether young children have an increased risk of developing atopy when their mothers received antibiotics during delivery. By collecting and analyzing data on health care practices, Drs. Wohl and Curry say physicians will be able to reevaluate the short and long term benefits and risks associated with administering intravenous antibiotics during childbirth. This study will also be used to generate additional questions about the role early exposure of antibiotics plays on the development of the immune system of newborns, while providing research opportunities and training for students interested in the biomedical field.



Dr. Debra Wohl

We Welcome New Faculty

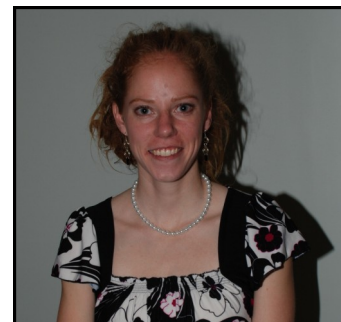
Dr. David Bowne joins the Biology Department as an Assistant Professor of Biology. With numerous grants and publications, and years in front of the classroom, he brings to the department a breadth of research and teaching experience. Dr. Bowne graduated with honors from Rutgers University as a George H. Cook Scholar with a B.S. in Natural Resource Management and a concentration in Wildlife Science. As an undergraduate, he conducted independent research on germination requirements of an invasive tree, dietary preferences of small mammals, and habitat use by crows. For his M.S. in Conservation Ecology and Sustainable Development at the University of Georgia, Dr. Bowne tested hypotheses concerning how animals live in fragmented landscapes. He continued this line of research for his dissertation work linking individual behavior to population processes at the landscape level. After earning his Ph.D. in environmental sciences at the University of Virginia, Dr. Bowne was the geographic information systems (GIS) specialist at the University of Richmond and then a visiting assistant professor at the University of Richmond and then Franklin and Marshall College. He also taught at Elizabethtown College. His current research projects include a long-term study of the spatial population dynamics of painted turtles, the application of ecological theory to improve understanding of the insurgency in Iraq, and an analysis of factors influencing antibiotic resistance in soil-dwelling bacteria in Lancaster County. We are pleased to have Dr. Bowne join us as a tenure-track faculty member.



Dr. David Bowne

Congratulations!

We are proud to announce that **Erin Fisher, '08** has been selected as a NCAA Post Graduate Scholarship Recipient for her excellence in Women's Cross Country. Erin is from McEwensville, Pennsylvania. The NCAA awards postgraduate scholarships to student athletes who excel academically and athletically and who are in their final year of intercollegiate athletics competition. The program aims to reward those individuals whose dedication and effort are reflective of those characteristics necessary to succeed and thrive through postgraduate study in an accredited graduate degree program. Erin also was selected as one of ten finalists for Woman of the Year by the NCAA for DIII. Erin is currently working as a research technician at Drexel University in the Department of Bioscience and Biotechnology in Dr. Donna Murasko's lab. The focus of her research is on the effects of aging on the immune system. She will be utilizing animal models to compare differences in lymphocyte activity between young and aged mice. Improving the understanding of how aging affects the immune system can lead to more efficient treatments for disease in the elderly population.



Erin M. Fisher, '08

RESEARCH

2008 PAS Presentations

Eleven biology students presented the results of their research projects at the 2008 Annual Meeting of the Pennsylvania Academy of Science that was held in Grantville, Pa. this past spring. Those presentations ranged in topics from Immunology and Genetics to applied Ecology.



(from left) Matt Kochuba, Mike Wagner, Jasmine Myers, Angela Mitchell, Lisa Sether, Bryon Martinez, Liz Sodomini and Dr. Jodi Yorty were among the students and faculty who attended the PAS Annual Meeting

Summer 2008 Student Research Activity

Three students and alumni performed research this summer with Elizabethtown faculty at Elizabethtown College. Their research was gratefully supported by the Lyet Research Endowment, the National Science Foundation (Dr. Bridge's grant), National Institutes of Health (Dr. Cavender's grant) and the continuing generosity of Dr. E. Jane Valas. The students share their experiences below.

Rebecca Holler, '09— Over the summer I spent 10 weeks working in Dr. Bridge's lab researching the role of FoxO in *Hydra*. FoxO is a transcription factor that has been shown in other organisms to play major roles in aging and stress response. In this project we have worked to see what role it plays in the small cnidarian *Hydra*, which has been shown not to age. This summer using previously made transgenic *Hydra* I worked to characterize what pathways regulate *Hydra*'s FoxO stress response. I will now continue this project during the school year to confirm previous findings as well as to find out more about FoxO's role in these simple organisms.

Jasmine Myers, '08— Although I graduated in May of 2008, I remained at Elizabethtown for the summer to work with Dr. Cavender finishing up loose ends on several projects. I helped complete Western blot analysis for a paper by Meghan Gowens, '06, which is being submitted to the journal *Virology*. I also completed a series of transfections into transformed rat cells to complete work begun by Angela Mitchell, '08. This project is now being prepared for submission to the *Journal of Virological Methods*. I am currently enrolled at Johns Hopkins in a Masters Program.

Elizabeth Sodomini '11—This summer of 2008 I spent ten weeks investigating aspects of tumor immunology with Dr. Jodi Yorty. We worked on two main projects. The first investigated the effects of the stress hormone, corticosterone, on the function of tumor-specific T cells. T cells are an integral part of the body's immune system for fighting infection and cancer. We observed the effects of stress on these T cells in vitro to gain a theoretical understanding of what may be occurring in the body. Our work demonstrated that exposure of tumor-specific T cells to corticosterone decreases their ability to proliferate and produce important anti-tumor cytokines. A manuscript of this work has been sent to *BIOS* for publication. To further expand this research we also worked to develop a mouse model using tumorigenic cells. This model will allow for the effects of stress hormones to be observed in vivo. Further work on the in vivo tumor model will be continued throughout the school year.

Student Summer Experiences

Many of our students spend the summer in research laboratories, pursuing internships, gaining experience “on the job” and volunteering in biology-related fields. Here are some personal accounts of what our students learn and experience from these opportunities. If you have openings for students, please let us know.

Sarah Deysher, '09—Cutting open dead whales, feeding harbor seal pups and nursing endangered sea turtles back to health; this is what my past summer, interning at the Marine Animal Rehabilitation Center (MARC) at the University of New England in Biddeford, Maine, consisted of! Beginning my internship at MARC, I was thrown right into the daily tasks of tube feeding baby seals, assisting in examinations of sea turtles, testing and maintaining water quality and lots of cleaning and dish washing! On occasion, I attended releases of the seals and turtles back into the wild and I took part in various necropsies (animal autopsies) of seals that did not make it through the rehabilitation process. I even assisted in the necropsy of a pilot whale! My favorite part of working at MARC was the dedicated effort the staff and volunteers had to teaching – I learned a great deal about



*Sarah holding "Tigger" a Kemp's Ridley (*Lepidochelys kempii*) sea turtle at a release*

animal medicine and specific treatments, how to draw and analyze blood and how to properly handle seals and turtles physically. I had a tremendous experience meeting veterans in the field of marine biology, and learned what a career in such might entail. This has been an extraordinary and positive experience, one that I hope will further direct my interests in biology.

Lisa Sether, '09—This past summer, I volunteered at the Bobst Hospital of The Animal Medical Center in New York City. The Animal Medical Center is the biggest animal hospital for small animals in New York. The hospital consists of about ninety veterinarians in seventeen different specialties, and sees over 50,000 patients a year. While volunteering I worked mainly in the emergency room and the clinic helping to restrain animals, and spent the last two weeks shadowing the internal medicine team on rounds and appointments.

Kristen Taddonio, '09—This summer I worked at Germantown Academy in Fort Washington, Pa. as a Science camp counselor. I taught children from pre-kindergarten through 6th grade and was able to pick, and design my own experi-



Kristen doing an experiment with students from Germantown Academy

ments. The projects that I designed and taught included owl pellet dissection, learning about germs, working with and understanding ultraviolet light, and my favorite, strawberry and pea DNA extraction. The kids absolutely loved it!

Janet Richards, '09—This past summer I participated in the 2008 Summer Undergraduate Research Program sponsored by Jefferson College of Graduate Studies in Philadelphia. I worked in Dr. Craig Hooper's lab and we were investigating B cell activity in the cerebellum and spinal cord of EAE mice which is the model for multiple sclerosis. I learned various laboratory techniques that will be useful in future research.

Jason Matakas, '09—This summer I was a member of the Summer Undergraduate Research Fellowship Program (SURF) at Rockefeller University in New York City, NY. I conducted graduate level research in the Young genetics lab. The primary focus of my lab is *Drosophila* circadian rhythm. I determined that the cryptochrome photoreceptive pathway is necessary for the polyadenylation of certain key transcripts involved in regulating the molecular feedback loop responsible for synchronizing circadian rhythms to environmental cues. I presented these findings at a poster session at the end of the program.

Student Summer Experiences continued...

Stacey Lehman, '09—This summer I participated in the Summer Undergraduate Research Internship Program (SURIP) at the Penn State College of Medicine in Hershey. This summer research opportunity allowed me and 13 other students from across the country to pursue research projects in the various departments of the College of Medicine. The internship program also included two weekly seminars on career development and research projects of different faculty members.

I completed research on liver cancer in the department of pharmacology. My project was titled, "Characterizing and Targeting Survival Factors in a Hepatocellular Carcinoma Stem Cell Population." This research focused on identifying survival factors that were over-expressed in certain liver cancer cell lines and attempting to decrease their expression by siRNA. I also looked at the combined effect of traditional chemotherapeutics with siRNA.

The internship ended with a symposium at which interns presented their research to faculty members and peers. I also took the opportunity to present my research at Virginia Tech at the USDA Multi-institutional Undergraduate Research Symposium on Obesity, Nutrition, and Health.

Lindsey A. Evans, '11—For the third summer in a row I worked at Bucktoe Creek Nature Preserve. Identifying and removing invasive plant species such as multi-flora rose, bittersweet vine and the aptly named mile-a-minute was a major part of the job. Discovering and protecting native plants, as well as routine park maintenance, was also important. This year we did a survey of two of the streams on the property. I helped to collect and identify different types of fish, crawfish and eels. During the study we found a type of shiner not known to be in that part of Pennsylvania, as well as an unusually large American eel.

Kristen Zamietra, '09—This summer I volunteered for one week at a Muscular Dystrophy Association camp at the Variety Club in Philadelphia. I was assigned a camper for whom I was completely responsible, and I helped her with all of her daily needs. The camp was a great place for young people with MD to go to have fun and socialize. The campers and their counselors participated in activities such as sports, swimming and arts and crafts during the day. At night there were various activities including a casino night, a rock band concert and a dance. I really enjoyed helping the campers and seeing them enjoy themselves so much. While at camp, I learned new skills such as lifts and transfers which will prove to be helpful later in my career.



Kristen with camper Jessie

Molly Gabler, '11—This past summer I was employed by the PA Department of Agriculture researching for the Plum Pox Survey. The program started eight years ago and its goal was to completely wipe out the plum pox virus (which infects prunus plants, peaches, nectarines and apricots) in Pennsylvania. I worked alongside other college students and we traveled to various prunus growers throughout Adams, Cumberland, Franklin, and York counties, collecting leaf samples from their orchards. We would then take the samples back to the grinding lab to process them for further testing by the ELISA lab. The summer was very productive in that we didn't find any Plum Pox!

Study Abroad



Derek releasing a turtle

Derek Faust '10.—In the spring of 2008 I was given the opportunity to study abroad at the Center for Marine Resource Studies on South Caicos in the Turks and Caicos Islands. I joined 18 students from colleges from across the US and other countries in the program run by the School for Field Studies (SFS). We came together relatively quickly primarily because we lived in close quarters. We were allowed only one cold, fresh water shower per week with the rest of our bathing being done at the dock in the ocean.

We spent most afternoons in the ocean identifying fish or laying transects for research of fish and the Queen Conch *Strombus gigas*. The first two months of this great experience was spent in three classes, marine ecology, environmental policy, and resource management. Most mornings were filled with lectures for these classes. After lunch, we often went out on the beautiful ocean surrounding South Caicos doing research or studying for our upcoming identification tests. We snorkeled almost everyday and went on scuba dives often. One night I had the great

pleasure of catching a Hawksbill Sea Turtle *Eretmochelys imbricata* as part of ongoing research of their migration patterns.

The last month was devoted to research on a project that each of our professors was working on. My particular research focused on the feasibility of a recycling program for South Caicos. This involved going to the major importers of recyclable items, the grocery stores, and getting an inventory of the recyclable products they ordered in a year. I then prepared a cost benefit analysis of recycling cardboard and aluminum cans on South Caicos. I concluded that with the help of the government or a non-government organization to cover the start up costs it would be economically sustainable for these materials to be recycled.

In addition to all of this, I was able to learn about the culture of South Caicos not only from the staff at SFS, but also by interacting with the community. On Wednesdays, we would go to the grade school and “help” the teachers with the children. Most of who became very attached to us. We also had community outreach on Saturdays. The same kids we saw on Wednesday were at the center to learn to swim and play games. We also helped teach English as a second language and computer classes and did our part environmentally by going to Long Cay to cut down an invasive species, the Australian Pine. I learned a great deal from my time in South Caicos and am currently working with friends to help the people on the island recover from the impacts of Hurricane Ike.

All of us formed great friendships with each other and the staff. We have stayed in contact and miss each other and the people of South Caicos.

Picture of a Barracuda taken on a dive



Barely visible stingray we spotted on a dive

School students we taught



Student Club News

MEDICUS is a student-run organization dedicated to the issues relevant to pre-health professionals. As such we are involved in numerous service projects which expose students to the ever changing medical world. Some of the events we're planning to participate in this year are the Juvenile Diabetes Research Foundation (JDRF) 5K walk, toy cleaning at the Child Life Department at Hershey Medical Center, and a dinner at the Ronald McDonald House for Into the Streets. We also hope to initiate a contact sheet for students who are interested in shadowing in the Elizabethtown Area and to host speakers from various post-graduate health schools, including some of Elizabethtown College's own graduates. Between all these activities and keeping up with schoolwork, Medicus is off to a busy start! *Any questions or suggestions should be directed toward medicus@etown.edu.*

BIOLOGY CLUB The Biology Club is looking forward to another new and exciting school year. Last year, plans were put into motion toward developing a writing consulting service to help students writing formal lab reports for their courses. This is a student directed project, and we are hoping to get this established early this year to help students learn the correct techniques of scientific writing. The club is also looking forward to continuing with wetland and stream restoration for Into the Streets as well as hosting a variety of speakers and fun yet educational events. *Any questions or suggestions should be directed toward biologyclub@etown.edu*

TRI BETA The Elizabethtown Rho Lambda Chapter of BBB, was founded in 1996. Rho Lambda's members are those biology students who excel at their work and are eager to participate in the department through tutoring, research, or other service activities. Last year the Rho Lambda chapter of Tri-Beta provided tutoring to students in the introductory biology classes. Members also helped judge a science fair at a local school. This year we plan to again offer tutoring as well as have a speaker come to campus. *Any questions or suggestions should be directed toward tribeta@etown.edu.*

Medicus Co-Hosts Sixth Annual Think B.I.G. Summer Camp

Medicus and SIFE (Students in Free Enterprise) held their sixth annual Think B.I.G. (Believing, Inspiring, Guiding) summer camp this past summer. The camp got its name from world-renowned pediatric neurosurgeon Ben Carson who grew up in poverty in inner-city Detroit and Boston. Ben Carson wrote a book called, "Think Big," about his struggles and his personal formula for success. This year the week-long summer camp was held from June 23-27 and took in forty-three students from inner-city Lancaster and Harrisburg elementary schools. Each day students would learn a science lesson and a business lesson. This year, eight students from Medicus volunteered to help teach science



Kristen Zamietra showing students a pig heart and lungs

and business lessons: Jennifer Ammirata, Matthew Barr, Tiffany Kulp, Allison Rahtes, Nicole Triner, Stephanie Triner, Kristen Zamietra, and alumna Erin Fisher. The students learned about gravity by performing an egg drop on physics day, and about polymers by making slime on chemistry day. They also learned about acids and bases and how to clean pennies! On ecology day, students learned how to use compound microscopes to view plankton collected from the college's Lake Placida, and on biology day they learned about anatomy and blood flow through the heart by looking at real pig hearts and lungs. Finally, the fifth day was spent playing Bingo to review the science concepts they had learned throughout the week before graduation in the afternoon. The camp is designed to show students the possibilities offered in the fields of science and business and to introduce to the opportunities offered by a college education.

A Special Thank You

*to the Biology
Students and faculty
who contributed their
summer research,
work, volunteering,
and internship
experiences for the
Newsletter*

Newsletter Editors

Janice Davis
Tom Murray

Biology Faculty and Staff

Helen Bartlett
David Bowne
Diane Bridge
Jane Cavender
Jonathon Coren
Janice Davis
Tom Murray
Khristy Thompson
Debra Wohl
Jodi Yorty

How to Contact Us:

Biology Department
One Alpha Drive
Elizabethtown, PA 17022
Phone: (717) 361-1389
FAX: (717) 361-1243
Email: biology@etown.edu
Web: www.etown.edu/biology

Send us your news:

If you have something significant going on in your personal or professional life that you would like to share with other Alumni, we would love to hear from you. Please send us your brief message, and we will try to include them in the next newsletter as space allows. You can reach us at biology@etown.edu or through snail mail at the address listed below left. Please indicate if you want your message included in the next newsletter. We look forward to hearing from you!



2008 Graduates

Thirty-one students received Bachelor of Science degrees from the Biology Department this past May. Sixteen in Bio-premed, three in Bio-technology, two in Bio-allied health and five in Biology and five in Environmental Science. Among those who graduated, two graduated with the high distinction of *Summa Cum Laude*, five *Magna Cum Laude* and six *Cum Laude*. One student graduated through the Elizabethtown College Honors program and two graduated with Biology Department Honors. Among those who graduated approximately 16 students will continue their education this year and have been accepted at the following colleges and universities: Pennsylvania State University College of Medicine, Thomas Jefferson University, Philadelphia College of Osteopathic Medicine, University of Pennsylvania, Veterinary School, NYCOM, University of North Carolina, Georgetown University, Johns Hopkins, DeSales University, Drexel University, Temple University School of Podiatric Medicine, Ross University, University of Rochester, Edward Via College of Osteopathic Medicine. Students pursuing additional study have enrolled in programs for Medicine (MD) (DO) (PhD), Physical Therapy, Veterinarian, Physician Assistants, and neuroscience. We congratulate our 2008 graduates and wish them well in their career and academic pursuits.



Elizabethtown College

DEPARTMENT OF BIOLOGY
ONE ALPHA DRIVE
ELIZABETHTOWN, PA 17022-2298

2008 Alumni Award Presentation



Dr. Connie Chronister, '81

The *Dr. Charles S. Farver-Apgar and Dr. Bessie D. Apgar Biology Alumni Award* will be presented to the 2008 recipient **Dr. Connie Chronister, '81** at Homecoming on October 18th at 2:30 pm in Gibble Auditorium located in the Masters Center for Science, Mathematics and Engineering. After receiving her Bachelor of Science Degree in Biology at Elizabethtown, *cum laude*, Dr. Chronister earned her Doctorate of Optometry at the Pennsylvania College of Optometry in 1986. She is currently Chief of Service at The Eye Institute of Pennsylvania College of Optometry, Director of Low Vision Service at the Philadelphia Veterans Administration Hospital, Associate Professor at the Pennsylvania College of Optometry and Adjunct Faculty at The New England College of Optometry and the State University of New York College of Optometry. She is a Fellow of American Academy of Optometry, and a member of the Pennsylvania Optometric Association and the American Optometric Association. She has many publications and even some inventions and has received numerous awards for her work. Dr. Chronister will share her experiences immediately following the award presentation. We congratulate Dr. Chronister on her achievements and look forward to presenting her with this award.
