



Elizabethtown College

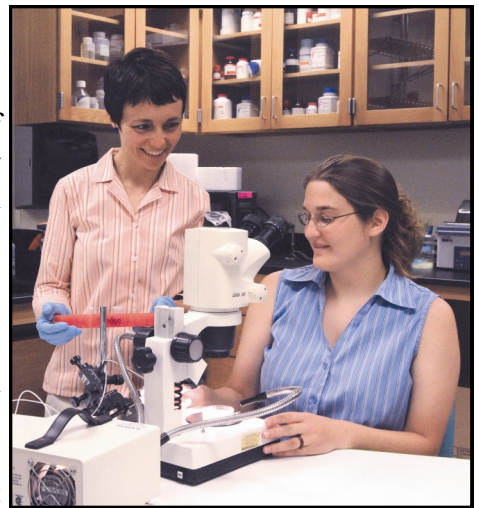
# Biology Newsletter

Fall 2010

## Grant from the National Institutes of Health to fund student research on the biology of aging

A grant from the National Institutes of Health awarded this summer will provide money for the next five years for summer student research stipends, student travel to scientific meetings, laboratory supplies, and new equipment. The grant funds a collaborative project between Elizabethtown College Associate Professor Dr. Diane Bridge and Dr. Daniel Martinez, chair of the Biology Department at Pomona College in Claremont, California. It provides a total of approximately \$1,123,000, to be used at Elizabethtown College and Pomona College over five years. This award continues the department's record of procuring funding from the National Institutes of Health.

The research funded by this award will use the simple invertebrate hydra to study the biology of aging. Some species of hydra do not show declining health as they get older, but can apparently survive indefinitely. Members of other species live only a specific amount of time after reproducing. The research planned will investigate whether the difference in lifespan in hydra species is caused by differences in amounts of heat shock proteins, proteins which help to minimize levels of abnormally-folded proteins in cells. Aggregations of abnormally-folded proteins are associated with diseases including Alzheimer's disease and Parkinson's disease. Hydra have stem cells which can replenish all of the cells in their bodies, and heat shock proteins may prevent damage to these stem cells, permitting members of some hydra species to live a very long time without any decline in health. Information about their roles in hydra may provide insight into how heat shock proteins protect human cells as we age, and the limitations on their ability to do so.



Dr. Diane Bridge (left) and student Rebecca Holler, '09 working with hydra

Students involved in the project will clone heat shock protein genes and DNA regions which regulate heat shock protein gene expression. They will also examine whether experimentally changing levels of heat shock proteins affects hydra lifespan and survival of hydra stem cells. Students conducting research as part of this project are Stephanie Ellwood, '12, Stephanie Gingrich, '12 and Gregory Shedlock, '12.

The preliminary data necessary to apply for the grant were collected by two Elizabethtown College alumni, Alexander Theofiles and Rebecca Holler, during their time at the college. A graduate of Pomona College, Emily Marcinkevicius, collaborated with them. Their results were published this summer in the journal PLoS One, in a paper entitled "FoxO and stress responses in the cnidarian *Hydra vulgaris*."

## From the Chair...



Dr. Jonathon S. Coren

Greetings Biology Alumni!

On behalf of the students and faculty, I am pleased to share my first alumni newsletter with you. I succeeded Dr. Murray as chair on July 1. Tom did an excellent job for the past six years, and I have big shoes to fill (size 13 to be exact)! Tom will continue to be a valuable resource as I learn the ropes. Our students and faculty had another successful year. Congratulations to Dr. Diane Bridge who received a five-year NIH grant with her collaborator at Pomona College. The funds will be shared between Dr. Bridge and Dr. Martinez. Congratulations to Dr. Jennifer Stanford, '99 who is the winner of this year's alumni award. I hope that you can join us to celebrate her achievements during Homecoming weekend.

We are in the process of assessing all of our programs and individual courses to determine if our students are meeting the outcomes that we established last year. This spring we will be conducting an alumni survey. Please participate if you are contacted. Your continued feedback and support are vital to the Department. This year we will be initiating a formal Seminar Series on Thursday afternoons hopefully at least once a month. If you would like to talk about your career or your research, please get in touch with me. I look forward to seeing many of you at Homecoming!

A handwritten signature in blue ink that reads "Jon Coren".

## Department News

**Dr. David Bowne** presented with students at the Mid-Atlantic Chapter of the Ecological Society. He is part of an almost \$500,000 grant from the National Science Foundation which established the Ecological Research as Education Network which comprises faculty at a dozen colleges in the Northeast and Midwest who will partner in developing collaborative research projects focused on regional to continental-scale ecological issues. Dr. Bowne is also part of a \$13,000 grant that conducts amphibian monitoring at the Big Spring Run stream restoration project in Lancaster County, PA and is continuing his long-term study of the spatial population dynamics of painted turtles at Blandy Experimental Farm in Virginia.

**Dr. Diane Bridge** had a paper entitled "FoxO and stress responses in the cnidarian *Hydra vulgaris*" published in the journal PLoS One. Coauthors include alumni Rebecca Holler, '09 and Alexander Theofiles, '07. She is on sabbatical this fall semester and will be attending a meeting on use of invertebrate species to study diseases of aging, to be held at the National Institutes of Health in November.

**Dr. Jane Cavender** continued research she began under her NIH:NCI grant. She co-authored two presentations with Michael Nelson, '10 and Maggie Kench, '10 at the *Beta Beta Beta* regional conference. Two of her students were awarded grants from Beta Beta Beta National Biological Honor Society. Dr. Cavender is chair of the Resources and Planning Committee and is currently serving on the Presidential Search Committee.

**Dr. Jon Coren** gave a presentation on Personalized Medicine at the Calvary United Methodist Church on September 22. His research students, John Fuesler and Heather Peluso are performing functional studies with the tumor suppressor gene p53 in a human cell line that lack a functional copy of p53.

**Dr. Tom Murray** continues his work with the Conewago Initiative, a multiyear, multiagency effort funded by the National Fish and Wildlife Foundation to document the successful restoration of a watershed contributing to the Chesapeake Bay. He gave a poster presentation on lake restoration at the North American Lake Management Society Meeting in Hartford last fall, and will be attending the American Society of Limnology and Oceanography meeting in San Juan, Puerto Rico in February.

## Department News continued...

**Dr. Debra Wohl** presented the research findings of a two year study with Dr. David Bowne on antibiotic resistance in soil bacteria and land-use at two meetings this summer, the 13<sup>th</sup> International Symposium on Microbial Ecology and the Conference on Antimicrobial Resistance in Zoonotic Bacteria and Food borne Pathogens in Animals, Humans, and the Environment. She also continues to work on her NIH grant with Dr. William Curry (Penn State College of Medicine) examining the relationship between antibiotics at delivery and eczema, allergies, and asthma in young children.

**Dr. Jodi Yorty** recently initiated a collaborative research project with Dr. Todd Schell at The Pennsylvania State University, College of Medicine in Hershey. The project seeks to determine the effect of the murine stress hormone, corticosterone, on the CD8+ T cell response to a tumor antigen. Preliminary research on this project was presented at the annual American Association of Immunologists meeting in Baltimore in May 2010.

## We Welcome New Faculty



*Dr. Aaron Cecala*

**Dr. Aaron Cecala** joins the Biology Department as assistant professor of biology. He will be teaching our Anatomy and Physiology courses. Previously, he was visiting assistant professor of biology at Franklin & Marshall College, where he taught Neural Control of Movement; Biology, Ethics and Society; and Introductory Neuroscience. He was also an adjunct professor at St. John Fisher College; a guest lecturer, student mentor and teaching assistant at University of Rochester; and a teaching assistant at Allegheny College.

Dr. Cecala received his BS in neuroscience and psychology from Allegheny College and his PhD in neurobiology and anatomy from the University of Rochester. Aaron is a behavioral neuroscientist interested in how vertebrate nervous systems sample information from their local environment and use this information to plan and execute coordinated movements of the limbs. Student projects in his lab will study the effects of aging and disease (e.g. Parkinson's) on human eye movements. We are pleased to have Dr. Cecala join us as a tenure-track faculty member.

## Change in Department Chair

**Dr. Tom Murray** stepped down as department chair effective June 30, 2010. Dr. Murray has been with the biology department since 1994 and has been the department chair since 2004. Under his leadership the department moved into the Lyet Wing for Biological Sciences in the new Masters Center for Science, Mathematics and Engineering and is enjoying the opportunities that this new state of the art facility affords. He will continue as the Director of the Environmental Science program and will now have more time to pursue his research interests which include nutrient dynamics in lakes and watershed management and restoration.

We bid a welcome to **Dr. Jon Coren** who now resides in the chair's office. Dr. Coren has been with the department since 2002 and is the Director of our Allied Health Program. Dr. Coren's research involves the study of gene expression of the tumor suppressor gene p53 at the levels of transcription and translation. We are looking forward to Dr. Coren's leadership as we begin the next decade of academic excellence here in the Biology Department at Elizabethtown College.

## Summer 2010 Student Research Activity

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

**Katelyn Snyder, '11 and Brittany Kuperavage, '11** — This past summer we worked with Dr. Debra Wohl on her research funded by the National Institutes of Health. We collected data to investigate the relationship between antibiotics given to women during delivery and the prevalence of eczema, allergies, and asthma (i.e., atopies) in their children. Our hypothesis stated that women who were given antibiotics during delivery would give birth to babies with a higher risk of atopies. To date approximately 1800 women have been invited to the study from which 430 of them have agreed to participate by completing both a questionnaire and signing a medical release for their child(ren). We have almost completed collecting pediatric data, and we have more than fifty percent of the labor and delivery data from Penn State Hershey Medical Center complete. Dr. Wohl just received news that her study has been approved to include children born between 2006 and 2008. We look forward to collecting and analyzing more data in the next year.

**Stephanie Ellwood, '12** — During the summer I did research with Dr. Bridge on the role of heat shock proteins (HSPs) in Hydra. HSPs are molecular chaperones that aid in protein folding. When a cell is exposed to some form of stress, proteins misfold, and HSP genes are transcribed. Certain species of Hydra produce less of the heat shock protein HSP70 in response to stress than others do. These species are also sensitive to heat and other stress, and show rapid aging and death after reproduction. The goals for this project are to determine if low production of HSP70 is responsible for the aging and if increasing expression of HSP70 can delay the aging. As a first step to experimentally increase expression of HSP70, I cloned the coding portion of an HSP70 gene from a species of hydra which produces normal amounts of the protein. I also did experiments to document the expression in Hydra of heat shock factor 1, a regulator of HSP gene transcription.

**Stephanie Gingrich, '12** — This summer I worked in Dr. Bridge's lab with the goal of better understanding the role of the FoxO protein in cellular responses to stress in Hydra, a freshwater invertebrate animal. FoxO proteins help to regulate the life-span of some animals by responding to environmental stresses on cells, and certain alleles of FoxO genes are associated with long lifespan in humans. I performed experiments that involved tracking the localization in cells of FoxO protein tagged with green fluorescent protein. Tagged FoxO protein found in the nucleus of the cells provided evidence that FoxO proteins were active. I examined FoxO localization in Hydra treated with hydrogen peroxide to increase oxidative stress. I also performed initial experiments necessary to look at the effects of insulin on FoxO activity.

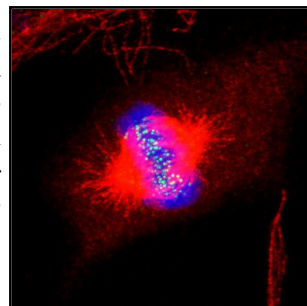
**Patrick Ney, '12** — Over the summer I investigated the importance of DNA repair enzymes to the survival of malignant melanoma tumor cells at the Penn State Cancer Institute in Hershey. In order to study these enzymes importance, we used a highly selective drug called siRNA to stop the translation of 246 DNA repair enzymes. Once the protein expression was knocked down, we irradiated our melanoma cells with UV-B light so that more damage could be incurred in each cells DNA. 48 hours after irradiation, the cells were checked for viability. Over the summer, we found some promising targets such as Chk1, Psm1, and Snrpf. I recommend any student who wants a science based degree participate in summer research programs because it gives you a great opportunity to get hands on experience with the subjects you are learning in the classroom.

**Matthew Doeing, '12 and Amanda Harris, '11** — Over the summer we worked with Dr. Bowne researching salamander populations at a field site in Lancaster. The site is part of a stream restoration project that aims to recreate the conditions of Pennsylvania streams before being affected by agricultural influences. Our objective was to take pre-restoration samples of salamanders in order to determine salamander species and population sizes, as well as other physical characteristics.

## 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.

**John Fuesler, '11** — This summer I performed research investigating the chemotherapeutic potential of curcumin in human osteosarcoma at A.I. DuPont Nemours Center for Childhood Cancer Research. I determined that curcumin causes G2/M cell cycle arrest and triggers apoptosis in the HOS and KHOS human osteosarcoma cell lines. I also discovered that curcumin modulates cytoskeletal components and affects tumor suppressor activity and the ubiquitin-proteasome system. Because curcumin is a “dirty drug” (affects multiple targets), if one cellular pathway curcumin targets is compromised in cancer, another functional pathway may be targeted. The results obtained this summer benefit osteosarcoma and anti-cancer research. Additionally, I had an amazing experience and learned many valuable techniques and concepts working in the lab under the supervision of Dr. Rajasekaran and Dr. Joon Lee.



*Immunofluorescence of a HOS cell at metaphase*

**Amanda Hopkins, '11** — I spent this summer working in the microbiology lab at SPI Pharma in Lewes, Delaware. The company extracts the magnesium from the Lewes Bay, and has aluminum brought in, and are used to make aluminum and magnesium hydroxides, which are the primary active ingredients found in antacids. SPI Pharma is unique in that it is one of the only magnesium processing plants in the world that gets its magnesium source directly from the water, rather than having it brought in from elsewhere. My job in the lab was to help test the products after they came off of the production line for various bacteria and molds before being shipped to locations around the world. In addition to helping test the products, I was involved in prepping the medias and agar plates used to test the products. This internship gave me great experience in working in an USP-based industry, which included keeping a notebook that met industry requirements, and sterility techniques required for handling products regulated by the FDA.

**Emily Brumbach, '11** — This past summer I worked as a Nutrition Assistant at the Penn State Cooperative Extension office in Northumberland County. Penn State Cooperative Extension is dedicated to educate the community in agriculture, energy and natural resources, and home and family health. As a nutrition assistant, I worked under a registered dietitian, helping her plan and execute nutritional programming throughout Northumberland and surrounding counties. The experience was enriching; I not only had to apply my biological knowledge while teaching programs, but also gained insight on how to interact with both children and adults of varying backgrounds. The most rewarding experience was knowing that I was helping members of my community improve the quality of their lives.

**Jill Patrick, '12** — This summer I was one of ten people selected to work as an ER Tech at the Cape Regional Medical Center in Cape May Court House, New Jersey. Being a ten to fifteen minute drive from many local shore points, the hospital often hires summer employees to help with their influx of summer patients. Working in the Emergency Department was a little overwhelming at first. As a tech we were allowed to do many more things than I had initially believed. The job consisted mostly of taking vital signs and helping the nurses to triage patients and often taking them back to their assigned beds and helping the patients to undress. When not working in triage, I learned how to take an EKG and often did them for the older patients. The job also consisted of taking vital signs, sending urine samples, transporting patients to CT scans, X-ray, Ultrasound and admitted patients to the floors. Along with these tasks, I was trained in how to apply OCL splints, also known as temporary casts and the many types of slings and immobilizers supplied to patients in the ER. Along with these tasks done on my own, the doctors and nurses were very willing to teach and demonstrate many different procedures and educate us more on specific patient's diagnosis. For certain procedures, I became the doctors "right hand man" supplying him with the stitches needed or cleaning and dressing the wound after stitching, gluing or whatever procedure had been done. Working in the Emergency Room not only helped me gain knowledge of certain terms, procedures and supplies but also helped me to gain great experience in many different areas of the hospital from stitches to patient interaction and connections with doctors, nurses and other techs that I hope to keep for the rest of my life.

---

**Student Summer Experiences continued...**

**Alician Mercuri, '11** — This past summer I had an internship at Manor Care Nursing Home in Pottsville, PA. Through this experience, I had daily contact with the patients and I was often involved with their care. Some of my duties included regularly helping the patients with activities such as bingo and trivia, transporting them to and from therapy, and helping to feed the patients at breakfast and lunch. From a clinical aspect, I had the opportunity of completing patients' skin assessments with the nurses in which any skin tears, abrasions, or bruises were noted. Often times, I was given the opportunity to shadow physician assistants and medical doctors who were making their rounds in the nursing home visiting many of their patients. I also had the opportunity of attending the nurses' morning meeting each day in which lab results, behaviors, and prognoses of each patient were discussed. While I was able to obtain many hours of clinical experience and hands-on patient contact, I also performed several clerical duties as well. I was often responsible for looking at referrals from hospitals in which I would determine, based on the medical history, if the patient should be granted admission into the facility. I also took pictures of residents, completed social assessments with patients, logged incident reports, and attended Care Plan meetings. As an intern at a nursing home this summer, I have learned how to interact and care for geriatric patients and how to efficiently communicate with them and their families.

After being inspired and encouraged by Dr. Jonathon Coren, I also had the opportunity to serve as a counselor at a camp for children with Muscular Dystrophy this past summer. Volunteering my time as a counselor at the MDA camp was the most rewarding experience of my life. I was blessed to be a counselor for a six year old boy who was diagnosed at eighteen months with Spinal Muscular Atrophy, a fatal neuromuscular disease that would leave him paralyzed from the waist down and in a wheelchair for the rest of his life. During the week, I had complete responsibility in caring for Hunter as I administered his medication each night, a breathing treatment in the morning, and fed him daily through a PEG tube since he was nutritionally compromised. Spending the week with that child had the greatest impact on my life and I now have an even greater desire to serve the disadvantaged and underprivileged patients as a physician assistant one day.

**Adam Derkacz,, '11** — This summer I worked as a Student Conservation Association (SCA) Intern at Acadia National Park on Mount Desert Island in Maine. I was a Biological Technician on the Vegetation Management Crew under the Resource Management Division. On a typical day, my crew would map and analyze populations of non-native invasive plants within the park using GPS units and GIS computer-programs back in the office. Once we had a particular population mapped and analyzed, we would mix herbicide solutions in backpack sprayers and treat the targeted infestation. We also maintained a native plant nursery where we would grow plants that were native to the island, and then transplant them in areas that needed re-vegetation, such as past-treatment areas, or sites of recently completed trail-construction within the park. I shadowed a number of other crews from time to time, including the Air and Water Quality Crew, the Wildlife Crew, and the Forest Crew. I enjoyed shadowing the Wildlife Crew the most because I helped them catch and analyze numerous bat species for an on-going bat research project. During my free time I did a lot of hiking through the mountains on the island, went kayaking on some nearby lakes, went to the beach, and also went skydiving. Overall, I think Acadia National Park was a truly magnificent place to spend my summer, and I consider myself very fortunate to have had the experience.

---

**Elizabeth Sodomini, '11**— Liz, a biotechnology major is currently participating in a unique full-semester internship in Cape Coast, Ghana. Liz will be documenting her experiences on her blog throughout the year. Please feel free to check in on Liz's progress at <http://lizsglobaladventures.blogspot.com/> .

---

The Third Annual Scholarship and Creative Arts Day was held on April 27th. Biology had 23 students presenting their research. You may see the full program by visiting [www.ETOWN.EDU/SCAD](http://www.ETOWN.EDU/SCAD) .



*For more detailed information about our Student Research, please visit our [Student and Faculty Research Page](http://www.ETOWN.EDU/biology) on our website [www.ETOWN.EDU/biology](http://www.ETOWN.EDU/biology)*

---

## Study Abroad

**Gregory Shedlock, '12** —I studied abroad in Cheltenham, England, UK at the University of Gloucestershire with the Brethren Colleges Abroad program. Cheltenham is located in the Cotswolds and is approximately two hours west of London. I enrolled in several core classes at the University and took my time to travel. I made frequent visits to London and various other places around the UK, including Bath, Oxford, and Portsmouth. Over a three week long Easter/Spring break I was able to make it to continental Europe to see France, Italy, Spain and even Morocco to ride a camel! I gained a vast amount of cultural experience that I hope helps me throughout my career and I definitely want to continue traveling with my career as a doctor.



*Greg at the Roman Baths in Bath, England*



**Jacklyn Armstrong '12** — Athens, Greece: the birthplace of democracy, a city full of history, the unforgettable place that I was fortunate enough to study abroad in this past spring. When I began the planning process to study abroad, it never seemed like something that would actually happen. But before I knew it, I had arrived in a world completely different from my own. I was in a city where I could not speak the language and I did not know the customs, but I would not have wanted it any other way. My experiences in Greece were life changing and remarkable. I was able to do a lot of travelling in this spectacular country and see everything from the tranquil islands, to the jagged mountains, to the wild flower covered hills. And every place I went was overflowing with history. Every place had its own story to tell. I learned so much during my time there, and not solely from the historical places I visited. I also learned from the people I met. I had the unique opportunity to teach English to refugees in the city once a week during my stay. These men and women were inspiring and I am so glad I had the chance to interact with them. Not everything was easy when I was there, but that is all part of the experience. And given the opportunity to go back, my name would be the first one on the list.

*Jacklyn sitting overlooking the picturesque village of Oia, Santorini Greece*

**Lindsey Evans, '11** — While studying at the School for Field Studies (SFS) Center for Coastal Studies in Baja California Sur, Mexico I did a lot more than swing in a hammock watching the sun set over the Pacific Ocean. We were constantly on or in the water. One of my first memories of encountering the dwellers of the not-so deep was watching a small octopus mama writhe in the professor's hand after her soda can home had been opened. I learned how to snorkel over rodolith beds covered with garish sea stars. It was a game to try to capture mangrove seedlings floating by with your kayak paddle. Of course, not all of it was play. The wet, pervading chill from hauling up 200 feet of net at 2am was far from pleasant, but there are moments that make it worthwhile. Like when the net goes around a wriggling ray or seeing the constellations shine in the serenely still water and you let your weary muscles relax into vague communal discomfort with the gentle rock of the boat. And there was a lot of community, as there so often is with a group of people with a shared passion. We pulled each other out of the muck, shared chores, confessed fears of sharks, bet on who would drink too much tequila or not make curfew. And beyond our campus the little boys I was supposedly teaching English too were insuring that I knew all the Spanish words for snakes. I learned about Mexico, human nature, how the world is fit together and something about what I, myself, am made of.



*Lindsey (left) looking for spiny lobster on the Pacific side of Magdalena Island*

## Student Club News

**MEDICUS** is a student-run organization for pre-health majors dedicated to strengthening the connection between Elizabethtown Students and the medical fields. We are involved in numerous service projects which expose students to the ever changing medical world. This year, we plan to do multiple service projects such as volunteering at the local retirement community, Masonic Village, as well as toy cleaning at the Child Life Department at Hershey Medical Center, and host a dinner at the Ronald McDonald House in Hershey. We also hope to host speakers, currently enrolled in post-graduate master's programs for nursing, physician assistant studies or medical schools. We hope many of the speakers to be Elizabethtown alumni! Hopefully we will gain many new members this year that will be able to carry Medicus into the future as one of the most interactive clubs at Elizabethtown College! *Any questions or suggestions should be directed toward [medicus@etown.edu](mailto:medicus@etown.edu).*

**BIOLOGY CLUB** is starting another very exciting and fun year. We have some interesting programs, continued from previous years, that will incorporate getting the First Years of the Biology department more involved. The program is called Bio Buddies and includes having a First Year student paired with an upper classmen who will guide them through their experiences of college in the biology department for their first year. This is an exciting program because it allows the First Year students to have someone, who has been there and experienced the same things that they are going through currently, to aide them in their difficult first year transition from High school to College. Other plans for the biology club include volunteer activities including forming a biology club team at various fundraiser walks to raise money, preparing meals at Ronal McDonald House, and community involvement with local high schools by promoting biology in various forms. Our Into the Streets project will be to clean the Conewago creek. The club encourages those within the major to pursue numerous options for post-graduate work by hosting recent graduates, admissions officers to graduate schools, and community members who pursued industry after graduation. On the group bonding side of the club, we are planning on having club a club camping trip and other outdoor activities. Overall, the club is looking forward to another awesome year. *Any questions or suggestions should be directed toward [biologyclub@etown.edu](mailto:biologyclub@etown.edu).*

**TRI BETA** The Rho Lambda chapter of the  $\beta\beta\beta$  National Honors Society here at Elizabethtown College is ready to continue its work to foster an understanding and appreciation of biology both on and off campus. Members will continue to dedicate their time to aid younger students pursuing biology through tutoring sessions and judging a local science fair. We will be making arrangements for speakers to further students' appreciation of the field, as well as beginning to develop some student-run projects, such as involvement in homecoming and a book club in collaboration with other campus clubs. *Any questions should be directed to [tribeta@etown.edu](mailto:tribeta@etown.edu).*



(from left) Dr. Jodi Yorty, Amanda Hopkins, Stephen Hurst, Dr. Jon Coren, John Fuesler and Liz Sodomini at the PAS Annual Meeting

## Student Presentations at Professional Meetings

During the spring, eleven students and five faculty presented the findings of their research at several scientific meetings across the region. Dr. Jon Coren and Dr. Jodi Yorty and four students attended and presented their research at the 86<sup>th</sup> Annual Meeting of the PA Academy of Science. Dr. Tom Murray and Dr. Jane Cavender and four other students attended and presented their research at the 2010 *Beta Beta Beta* Northeast District Convention. Dr. David Bowne and three students also attended and presented at the 7<sup>th</sup> Annual Conference of the Mid-Atlantic Chapter of the Ecological Society of America.



## 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  
Jon Coren

### Biology Faculty and Staff

Helen Bartlett  
David Bowne  
Diane Bridge  
Jane Cavender  
Aaron Cecala  
Jonathon Coren  
Janice Davis  
Tom Murray  
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](mailto:biology@etown.edu)  
Web: [www.etown.edu/biology](http://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](mailto: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!



## 2010 Graduates

Forty students received Bachelor of Science degrees from the Biology Department this past May. Six in Bio-Premed, four in Biotechnology, thirteen in Bio-Allied Health, twelve in Biology, one in General Science and four in Environmental Science. Among those who graduated, four graduated with the high distinction of *Summa Cum Laude* and five *Cum Laude*. Two students graduated through the Elizabethtown College Honors program and one graduated with Biology Department Honors. Among those who graduated approximately 14 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, Lake Erie College of Osteopathic Medicine, University of Maryland, Texas Tech University, DeSales University, Widener University, Lock Haven University, and the University of Florida. Students pursuing additional study have enrolled in programs for Medicine (MD) (DO) (PhD), Physical Therapy, Nursing, Physician Assistants, Cell and Molecular Biology, Developmental Biology, Microbiology, Immunology and Toxicology. We congratulate our 2010 graduates and wish them well in their career and academic pursuits.



## Elizabethtown College

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

---

### 2010 Alumni Award Presentation



*Jennifer S. Stanford, Ph.D., '99*

At Homecoming the Department of Biology will be presenting the *Dr. Charles S. Farver-Apgar and Dr. Bessie D. Apgar Biology Alumni Award* to **Dr. Jennifer Stanford, '99**. After graduating Summa Cum Laude from Elizabethtown, she received her Ph.D. in Cell and Developmental Biology from Harvard University. She then served as the Director of Cell Biology Education in the Harvard Medical School Department of Cell Biology. She is the recipient of numerous awards and fellowships and has published and given presentations both on her research and on teaching. She is currently an Assistant Teaching Professor at Drexel University where she teaches both undergraduate and graduate students. Please join us at the Alumni Award Ceremony on October 16, 2010 at 2:30 pm in Gibble Auditorium located in the Masters Center for Science, Mathematics and Engineering.

---