



Elizabethtown College

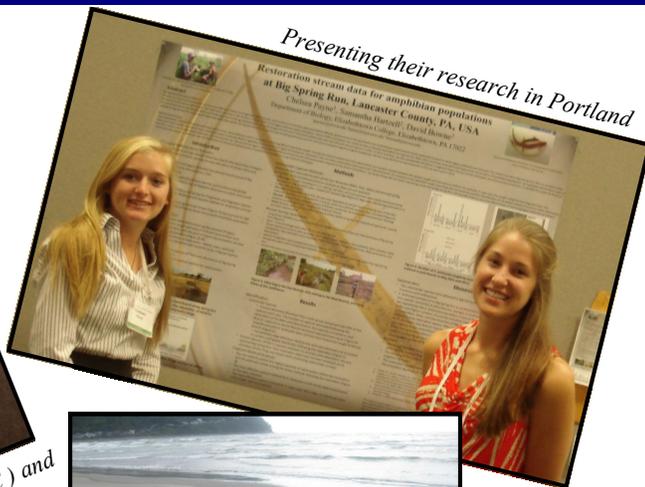
Biology Newsletter

Fall 2012

Biology Students Present Research and Win Award at Professional Conference



Samantha (L) and Chelsea (R) with Dr. Bowne (C) and their 1st Place Certificates



Presenting their research in Portland



Having fun on the beach in Oregon

Samantha Hartzell '12 and Chelsea Payne '13 won a first-place prize for Best Undergraduate Poster Presentation at the annual meeting of the Ecological Society of America, Mid-Atlantic Chapter, at Virginia Tech in Blacksburg, Virginia on April 14, 2012. Their presentation was titled "Pre-restoration stream data for amphibian populations at Big Spring Run, Lancaster County, PA" and was supervised by Dr. David Bowne, Biology. The award included financial assistance to attend the national meeting of the Ecological Society of America in Portland, Oregon from August 5 – 10, 2012. Dr. Susan Day, Chair of the ESA, Mid-Atlantic Chapter and Assistant Professor at Virginia Tech officially presented the travel award to them during a chapter business meeting in Portland. In addition to hearing a diversity of talks, networking with international faculty and students, and touring the beautiful city of Portland, Samantha and Chelsea presented a follow-up poster titled "Restoration stream data for amphibian populations at Big Spring Run, Lancaster County, PA, USA."



Faculty News

Dr. David Bowne is leading "TurtlePop," a national project researching the impacts of urbanization on freshwater turtle populations. As part of the Ecological Research as Education Network (EREN), faculty and students at thirty-two colleges are participating in the turtle research. Dr. Bowne with help from Aleah Miller '13 and Chelsea Payne '13 also continued his investigation of how salamanders and frogs are responding to an aquatic restoration project at Big Spring Run, Lancaster County. Chelsea Payne and Samantha Hartzell '12 traveled to Portland, Oregon in August to present, with Dr. Bowne, a poster of pre- and post-restoration data from Big Spring Run at the Ecological Society of America national meeting.

Dr. Diane Bridge conducted research together with students Scott Douglas '13 and Ryan Welker '14, using the simple invertebrate *Hydra* as a model to understand the disease of aging. This work is being conducted in collaboration with Dr. Daniel Martinez and Dr. Annalise Nawrocki of Pomona College in California. It is funded by a grant from the National Institutes of Health. The goal of the research is to determine the molecular causes of the difference between a species of *Hydra* which appears to be immortal and a species that shows physical deterioration with age, as well as unusual sensitivity to heat. Dr. Bridge presented results from this project at the American Aging Association meeting in Fort Worth Texas in May. She and Dr. Martinez published a paper in the International Journal of Developmental Biology describing the use of *Hydra* to study aging.

Dr. Jane Cavender conducted research with four students in the lab this summer. Viola Devine '12, Kyle Lord '13, Kevin Bloh '13 and Christopher Nelson '13 worked on the link between cell cycle activation by the simian virus 40 T antigen oncoprotein and the increase in ribosomal RNA synthesis. They are hoping to submit their results for publication by the end of 2012.

Dr. Aaron Cecala is continuing his work describing human eye movement behavior with the help of Brittany Benjamin '13, Alisha Martin '13, Chris Macomb '13. Over the course of the past year he was invited to give a talk in Anthony Leonardo's laboratory at Janelia Farm (Howard Hughes Medical Institute), had a manuscript accepted to *Advances in Physiology Education*, and another in the *Journal of Music Therapy* that was coauthored with Gene Behrens and Elizabeth Shea '12 from the Department of Music. He is also the director of the nascent interdisciplinary cognitive science minor which ties together coursework and faculty expertise from Biology, Philosophy, Physics and Engineering, and Psychology.

Dr. Jon Coren has been busy giving presentations about bipolar depression in my role as a Board member of the Mental Health Association of the Capital Region. He is in the process of submitting a revised grant proposal to the NIH.

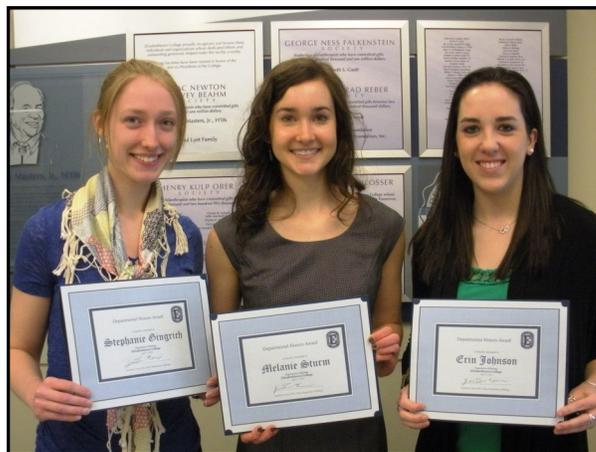
Dr. Tom Murray and his students are currently working on two major projects. In the first, students are participating in the Conewago Initiative, monitoring the success of a US Fish and Wildlife restoration of the Hershey Meadows site outside Elizabethtown. In the second, students are continuing to monitor stream temperature as part of the Riparian Buffer Affects Stream Temperature project, a continent-wide research project at 12 locations across the US and Canada coordinated by the Ecological Research as Education Network. The first results from that long term project were presented at the Ecological Society of America meetings this past August.

Dr. Debra Wohl and Kaity Snyder Tyrie '11 had a paper accepted for publication in *Bios*. The paper examines the relationship between antibiotic exposure and the development of allergic asthma. Other results from this research relating to eczema, allergies and asthma in young children were presented at the Ecological Society of America conference in Portland, OR by Dr. Wohl this summer. This fall, Dr. Wohl's research focuses on the distribution of antibiotic resistance genes found within environmental samples.

Dr. Jodi Yorty continues her research examining the effects of corticosterone on immune cells and tumor growth. She presented her research this summer at the psychoneuroimmunology research meeting in San Diego, CA in early June. A manuscript presenting this research is currently under review for publication in *Brain, Behavior, and Immunity*. A second manuscript with undergraduate coauthor Elizabeth Bahr '12 has been accepted for publication in *Bios*.

Student Research Presentations

Biology faculty members and 12 students presented their research at various venues including the Beta Beta Beta Northeast District 2 Convention at Bloomsburg University, Bloomsburg, PA, Pennsylvania Academy of Sciences Annual Meeting at Cedar Crest College in Allentown, PA, Ecological Society of America Mid-Atlantic Meeting at Virginia Tech in Blacksburg, VA and at the Ecological Society of America National Meeting in Portland, Oregon.



Stephanie Gingrich '12, Melanie Sturm '12 and Erin Johnson '12 were awarded Honors in the Discipline during the Fifth Annual Scholarship and Creative Arts Day held on April 24th. Twenty-four biology students presented their research.

2012 Graduates

Forty-seven students received Bachelor of Science degrees from the Biology Department this past May. Six in Biotechnology, thirty-eight in Biology and three in Environmental Science. Among those who graduated, one graduated with the high distinction of *Summa Cum Laude*, two graduated *Magna Cum Laude*, and seven *Cum Laude*. Two students graduated through the Elizabethtown College Honors program and three graduated with Department Honors. Among those who graduated approximately 12 students will continue their education this year and have been accepted at the following colleges and universities: Drexel University, Thomas Jefferson University, University of Tennessee, Edward Via College of Osteopathic Medicine, Frostburg State University, Lake Erie College of Osteopathic Medicine, Arizona State University, University of Massachusetts, Philadelphia College of Osteopathic Medicine. Students pursuing additional study have enrolled in programs for Medicine, Physical Therapy, Nursing, Molecular Medicine and Veterinary Medicine. We congratulate our 2012 graduates and wish them well in their career and academic pursuits!

New Master's Program with Drexel University College of Medicine

The Department is pleased to introduce our **BS in Biotechnology + MS in Molecular Medicine** program which began in the Fall of 2011 and now affords students the opportunity to earn both degrees in five years after graduation from high school. Students will spend their first four years at Elizabethtown acquiring intensive research skills while fulfilling the requirements for the Biotechnology major and core curriculum then in their fourth year they attend live webcasted classes from Drexel College of Medicine. This program allows students to pursue a MS degree and continue to have the full four years of the Elizabethtown experience maintaining their involvement in clubs, sports, senate and theater, etc.

Two students who graduated from Elizabethtown in May, **Matt Rimbey '12** and **Bryan Frantz '12** are currently completing their 5th year in this program at Drexel and two Elizabethtown Seniors, **Kevin Bloh '13** and **Kyle Lord '13** are currently enrolled in this program this fall.

We are excited about this new opportunity for our students to be part of this growing field of medicine. For more information please contact Jane Cavender, Ph.D. at cavender@etown.edu

Summer 2012 Student Research Activity

Ten students performed research and worked with faculty this summer at the College. Their research was supported by Dr. Bridge's grant from the National Institutes of Health, college faculty grants, Dr. Bowne's PA Department of DEP subcontracted grant, and the continuing generosity of Dr. E. Jane Valas. The students share their experiences below.



Aleah with painted turtle

Aleah Miller '13— This summer I traveled to the University of Virginia's Blandy Experimental Farm where I assisted Dr. David Bowne in the trapping and data collection of painted turtles inhabiting several local ponds. Turtles were measured, weighed, marked, photographed, and released. Dr. Bowne has been studying this population for years in order to determine the long term population dynamics of this species. I also worked with Dr. Bowne doing field research at Big Spring Run, a recently restored wetland system in Lancaster, Pennsylvania. I used various methods to help assess the current salamander populations present in the system post-restoration. The data collected will be used to determine how salamanders respond to this method of restoration.

Chelsea Payne '13—This summer I worked with Dr. Bowne and Aleah Miller on a salamander population study at Big Spring Run in Willow Street, Pennsylvania. Big Spring Run was recently part of an experimental stream restoration in which legacy sediment was removed from the floodplain of the stream. This removal of sediment created a new habitat for many species of animals including a northeast species of salamander. Our team used different capture techniques in order to assess the salamander species present. I also worked in the lab with Aleah Miller '13 to revisit research I was currently doing on frog species in the stream using a computer system called songscope. The most exciting research experience this summer was presenting my preliminary research findings for Big Spring Run research at the National ESA meeting in Portland, Oregon. It was an educational and amazing experience that taught me a lot about ecological research throughout the United States.

Jessica Manchak '13 and Ceyda Sablak '15—worked in Dr. Jon Coren's lab on generating a stable Saos-2 osteosarcoma cell line that overexpressed the anti-apoptotic gene *Bcl2*. Since this cell line lacks any functional p53 protein, reintroduction of this gene contained in the PAC shuttle vector JCPAC-Mam1 would cause the cells to die. We are in the process of investigating if reintroduction of the p53-PAC construct into the new cell line will allow the p53 protein to be generated without causing the cell to die.

Ryan Welker '13—My research this summer with Dr. Diane Bridge focused on locating where the heat shock proteins Hsc70 and Mortalin are expressed in the invertebrate *Hydra*. To do this, parts of the Mortalin and Hsc70 genes were isolated using PCR. The PCR products were then cloned into a plasmid. Reverse transcription was used to create labeled RNA probes which were used to perform an RNA in situ hybridization. In situ hybridization allows detection of mRNA from a gene of interest. The results of the in situ procedures showed that both Hsc70 and Mortalin are strongly expressed in *Hydra* epithelial stem cells but not expressed in differentiated epithelial cells. I also found that both genes are expressed in sperm precursor cells but not the differentiated cells further from the body.

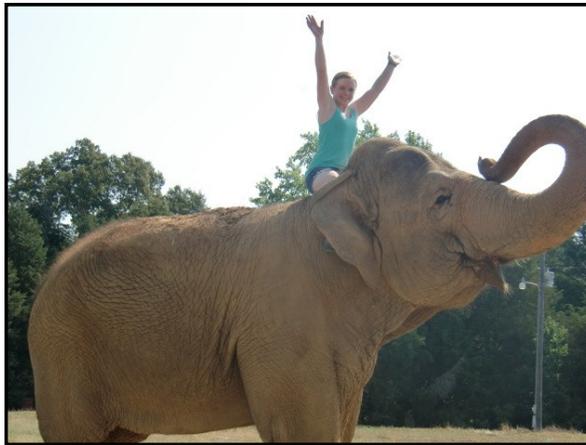
Scott Douglas '13—This summer I did research with Dr. Diane Bridge on the function of a heat shock protein (HSP) in the invertebrate *Hydra*. Specifically, my goal was to create a DNA construct which would upregulate the expression of an inducible HSP70 in both *Hydra vulgaris* and *Hydra oligactis*. The planned construct would include a *Hydra* HSP70 gene and a red fluorescent protein gene under the control of the HSP70 promoter. Once the construct is made it will be microinjected into *Hydra* embryos to produce transgenic *Hydra* which express higher-than-normal levels of HSP70. The components of this construct were made using polymerase chain reaction (PCR) or restriction enzyme digestion. By the end of the summer research session I created a construct including red fluorescent protein. This construct will be useful for future research in both our lab and collaborating labs. I am currently working on completing the HSP70 construct.

Kevin Bloh '13, Viola Devine '13, Kyle Lord '13, and Christopher Nelson '13 —This summer we all worked together in Dr. Jane Cavender's lab on two projects centered on the SV40 T antigen oncoprotein and its ability to transactivate (turn-on) specific genes. One project involve the oncoprotein's ability to activate the cyclin A and E promoters and correlating that activity to its ability to turn on ribosomal biogenesis. The second project involved T antigen's newly discovered ability to activate the nucleophosmin (B23) promoter, and we are now determining if this activity is necessary in the tumorigenesis process. We are very close to sending the cyclin paper out for review.

Student Summer Experiences

Many of our students spend the summer in other 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.

Elise Newton '13—This past summer I was an Elephant Care Intern at Riddle’s Elephant and Wildlife Sanctuary in Quitman, Arkansas. As an Elephant Care Intern, I had the opportunity to work with African and Asian elephants of both genders and various ages, from four and a half years old, to 53 years old! As an Elephant Care Intern, I observed standard methodologies of elephant training and husbandry. Every day was a new and enlightening experience whether it included learning about dietary restrictions, the basics of elephant anatomy, taking a hike through the woods to identify edible/non-edible trees and trees with medicinal purposes, or being able to observe various medical procedures being performed on one of the elephants. At Riddle’s, I learned that above all, observation is crucial. I learned that it is imperative to keep detailed accounts of both behavior and diet in order to track the animal’s health and wellbeing. As a whole, this internship was an immensely educational opportunity and one of the best experiences of my life. From personally feeding one of the male African elephants named Toby, to giving the elephants a bath, I made memories that will truly last a lifetime.



Elise sitting atop Booper

Sarah Sulon '14—I spent the summer at the University of South Alabama as a part of the National Science Foundation Research Experience for Undergraduates (REU). I conducted research under Dr. Richard Honkanen and Dr. David Forbes to synthesize and test Protein Phosphatase 5 inhibitors. PP5 is involved in the metastasis of breast cancer. Norcantharidin, an established PP5 inhibitor, prevents the spread of cancer but is toxic to the body due to its inhibition of other phosphatases essential to the cell. My goal was to synthesize substituted analogs of norcantharidin that would selectively inhibit PP5. Once the analogs were developed, they were tested in the biochemistry lab. My research culminated with a written paper and presentation in front of all faculty involved with the REU program. The experience was unforgettable and exceptionally valuable in the research experience I attained as well as the professional connections and contacts I developed.

Cody Schmoeyer '13—I worked with the Perkiomen Watershed Conservancy over the summer. I was in charge of visiting previously planted tree sites. The trees were planted to help reinforce stream banks. My job was to go and count the number of living trees, stake up trees that were falling over, put up deer fencing around trees if needed and take a general assessment of the stream and land around the trees to see if the plantings were working.

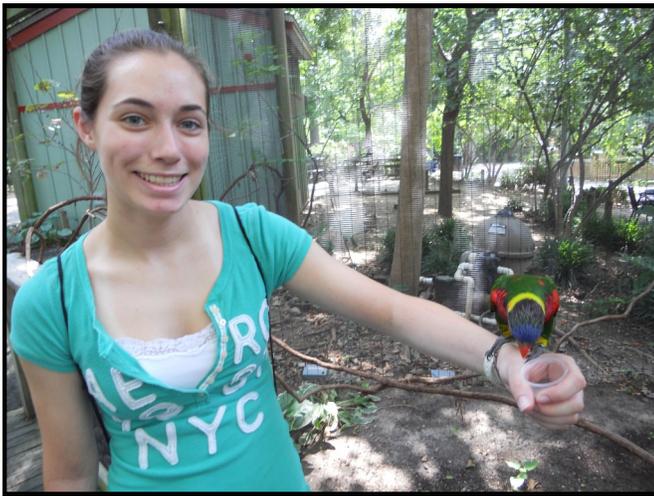


Matt working on a sustainable garden

Matthew Doeing '13—The internship I participated in this summer combined equal parts religious awareness with sustainable living and farming practices. I lived in a house in Stony Point, NY with 18 other people who consisted of different religious backgrounds - Muslim, Jewish, or Christian. As one part of the internship we learned how to farm efficiently and sustainably, visiting CSA (community supported agriculture) farms and working there. We also took care of two different gardens on the Stony Point Retreat Center grounds, one of which we started ourselves. In addition we participated in workshops and conversations that shed light on other religious backgrounds. Visiting different mosques, temples and churches was another integral aspect of this internship. Overall my summer ended up blending spirituality, sustainable living, community, and social justice in an enlightening environment in which I met many different people and gained many valuable experiences.

Student Summer Experiences cont.

Samantha Patton '14—This past summer, I participated in the School of Veterinary Medicine at the University of Pennsylvania's Veterinary Exploration Through Science (VETS) summer program, in Philadelphia, PA. The program is designed for competitive undergraduate students with interest and determination for a career in veterinary medicine to learn more about the field, possible careers, and the process of applying and surviving veterinary medical school. I was lucky enough to tour the school's facilities and have the opportunity to work in both the teaching laboratories as well as participate in shadow rounds at Matthew J. Ryan Veterinary Hospital in Philadelphia and the George D. Widener Hospital for Large Animals in New Bolton, PA. Overall, I learned how to make myself competitive as an applicant, and reassured myself of how much I want to become a Doctor of Veterinary Medicine. I also interned at Schwenksville Veterinary Clinic, in Schwenksville, PA. There I got valuable knowledge and experience working with small animal medicine. I worked closely with the veterinary technicians and with patients ranging from a new kitten to rescued Siberian Huskies. I also got the excited opportunity to watch multiple surgeries every week, performed by Ross Tramell, DVM.



Kimberly Feeding a Lorikeet

Kimberly Grouser '14—This summer I had the wonderful opportunity to be an Environmental Education and Animal Behavior Intern (EEABI) at the Philadelphia Zoo. As an EEABI intern, I got to meet some amazing people. I worked alongside staff members of the education department. I had the chance to talk to zoo professionals like Vik Dewan, the CEO of the zoo, some of the vets in the hospital at the zoo, and a few of the keepers. The EEABI internship has two sides to it, as suggested by the name. The environmental education side had me playing games related to the animals with children. I answered questions guests had about the animals. Over the course of the summer I had many conversations with the public ranging from one or two kids and their parents to whole camp groups. These conversations varied from “What do tigers eat?” to “The peacocks escaped their cage!” (The peacocks are free to walk around and just do what they want.) The animal behavior side allowed me

to gain experience doing actual research. I learned how to make and use an ethogram. I honed my observation skills. I got extremely good at explaining what I was doing to guests while observing and recording behaviors at the same time. I got to do projects on dwarf mongooses, red pandas, and prairie dogs so the zoo keepers could get the information they needed. I also got to design my own project. I chose to study how often the Amur tigers went in the water and what they did in the water. After doing my project I got to present my results to the public. This internship granted me the chance to see what it's like doing research and working in a zoo. All in all I had a great summer and will always remember the time I spent at the Philadelphia Zoo.

Sarah Pelletier '14 Over this past summer, I had the opportunity to volunteer at the Chambersburg Hospital. I was trained as a volunteer patient assistant, which allowed me to work with individuals on medical/surgical units. During my volunteer days, I would complete various tasks, such as transporting discharge patients, running specimens to the lab, acquiring various items needed for the patient, spending time with the patients and keeping them company, and assisting the nurses and CNAs with various tasks. The experience gave me a greater understanding of what it is like to work in a hospital. I was able to see how hospital medical/surgical units are organized and the types of patients that visit these floors. In addition to volunteering at the hospital, I was also able to shadow Physician Assistants at Penn State Hershey Medical Center. This was a really great experience, because I was able to enter into operating rooms and observe open heart surgeries and surgeries associated with port placements and drainage tube placements. Entering into the operating room really opened my eyes to what the hospital has to offer. The technology was more advanced than I had anticipated. The whole experience was very rewarding, and it gave me the satisfaction of knowing exactly what I want to do. I am so grateful that I had these opportunities, and I look forward to learning more about healthcare.

Student Recognition

Students are recognized at our Annual Awards Banquet in April for their educational accomplishments, recipients are shown below



Thomas C. Conover Memorial Scholarship
*Laura Wingert, Brittany Benjamin,
 Matthew Doeing, Jessica Manchak
 and Kristi Noecker*



**Dr. Benjamin G. Musser & Vera B. Musser
 Pre-Medical Scholarship**
*Alisha Martin, Scott Douglas
 and Lindsay Oberly*



Dr. Charles S. Farver-Apgar Award
Chelsea Payne



**Dr. Charles E. & Mary E. Weaver
 Biology Scholarship**
*Erin Murowany & Rachel Sulat
 (Not pictured) Kyle Lord*



Outstanding Academic Achievement Award
*Kristin Endriss, Erin Johnson, Elizabeth Michel,
 Colby Miller, Alyssa Neill and Melanie Sturm
 (not pictured) Kira Blome, Stephanie Ellwood,
 Stephanie Gingrich and Zachary Wendler*



Departmental Service Award
Elizabeth Bahr and Melanie Sturm



**Outstanding
 Student Teacher Award**
Colby Miller

Student Summer Experiences cont.

Lauren Zatkos '14—This past summer I had the opportunity to be a summer intern for my county's conservation district (the Bradford County Conservation District, or BCCD, Pennsylvania). My three fellow interns and I were able to work side by side with Conservation District staff on a variety of jobs and projects that ranged from stream and wetland restoration to wildlife education days at local schools. A few of the major projects I was fortunate enough to have participated in were the Agricultural Outreach Program and crop field soil sampling. The Agricultural Outreach Program helped to maintain communication between the BCCD and local land and animal owners, as well as educating them on regulation updates and changes. I was able to travel by myself through the county and talk to hundreds of residents face-to-face about newly required Manure Management and Soil Erosion plans, and provide options and information to those who had yet to create theirs. The other interns and I were also given the responsibility of collecting soil samples from crop fields belonging to Bradford County farmers. This entailed meeting with the land owner to understand his crop rotations, collecting the required amounts of soil from each field, and filling out information sheets to send the samples to Penn State University, where they would be tested for mineral and chemical content. These two projects, along with countless other jobs, land surveys, and speeches I attended, broadened both my knowledge and interests on a variety of topics. My summer internship has given me valuable experiences both in the field and in a formal workplace, and I was lucky enough to have learned new things every day while making new acquaintances and friends.

Study Abroad

Lauren Breza '14—My first glimpse of South Caicos, the tiny island I called my home, came from the small dirty window of a five-seater plane. Over the next couple of months those turquoise waters were my backyard, my classrooms. My study abroad with the School for Field Studies Center for Marine Resource Studies was undoubtedly the best experience of my life! Unlike most study abroad experiences, I opted out of a large university for a tiny field station in the Turks and Caicos Islands. I and 36 other students lived, slept and studied in an old inn at the southern-most tip of South Caicos. With water in short supply, students were not allowed fresh water showers, instead after a long day of research, we returned to the boat docks, biodegradable shampoo in hand, and jumped in for our “sea baths.” However, the lack of amenities did not inhibit my experience one bit. Our days were planned from hour to hour with classes, such as Marine Ecology and Resource Management, scheduled from 8-10 am and the rest of the afternoon devoted to field work. Our class work consisted of analysis of coral reef health, diversity of sea grass species and population dynamics of Queen Conch, *Strombus gigas*, and Caribbean Spiny Lobster, *Panulirus argus*, among others.



Lauren tagging a juvenile lemon shark

The last month of my study abroad was entirely devoted to Directed Research, with each of the 36 students selecting a topic in which to focus their time. Some chose to study lionfish populations, mangrove ecology or dock landings, while others focused on turtle nesting sites. I, however, worked with juvenile lemon sharks, *Negaprion brevirostris*. Every day for a month, three other students, our professor, Dr. Aaron Henderson, and myself woke around 5:30am in order to arrive at our sharking site before the first high tide. We would then set out a 100m monofilament gill net, take the necessary water quality samples and sit back and wait for the sharks to come to us. Over the course of our Directed Research, we caught a total of 47 sharks, including lemon sharks, nurse sharks and one unhappy sting ray. Upon capture, we would take three length measurements, weight, and tissue samples, as well as giving each shark a dart tag for identification. My personal Direct Research focused on the effects of water quality on the catch per unit effort (CPUE) of the juvenile lemon sharks, while others analyzed recapture rates or moon phases on CPUE.

Overall, my experience in the Turks and Caicos Islands truly taught me that my actions have consequences. Garbage can be found washed up on the South Caicos beach from as far away as Venezuela and Miami. In addition, I learned to live with less. No freshwater, no air conditioning, or snack foods. I survived happily for three months, and I brought that simplicity home with me! Between the relationships I made with both students and faculty, and the scientific knowledge gained, my stay in South Caicos will remain one of the best experiences of my entire life.



Aleah with a Mona monkey in Ghana

Aleah Miller '13—I spent the past semester in Washington, D.C. studying international environment and development at American University. Over the course of the semester I visited various environmental and sustainable development agencies including World Wildlife Fund, Smithsonian National Zoo, The Nature Conservancy, Climate Reality Project, and USAID. While in D.C., I interned at Earth Day Network, the organization that coordinates Earth Day events worldwide. There, I was responsible for representing the organization at an international level, for outreach to various groups, managing potential partnerships, and facilitating the coordination of Earth Day activities internationally. In order to delve into sustainable development issues and their possible solutions firsthand, I traveled to Ghana, a country located in West Africa. While in Ghana, I provided rural villagers (100 families and a local school) with water filtration devices purchased by funds gathered

through a project that I designed and implemented with a small group of peers. I also visited Mole National Park where I went on a safari and stood only feet away from wild elephants and had the opportunity to hand-feed monkeys at a sanctuary for Mona monkeys.

Melanie Hartman '13—I recently completed a year abroad in Germany through the Congress-Bundestag Youth Exchange. Through this program I was able to learn German, study for a semester at a German University, and complete a 5-month internship at a German research institution. I began my adventure on August 1st, 2011, when I headed to Cologne to begin a two-month intensive language course. I was able to learn German very quickly, which was good because my host family did not speak any English!

After completing language school, I moved to Leipzig, a city in what used to be East Germany. This was a really great experience because when I was born this city was just breaking out of communist rule. There were noticeable differences between Leipzig and Cologne, which is in West Germany, and Eastern Europe is still recovering from the oppression. While in Leipzig, I studied molecular biology and animal physiology as well as continuing my German studies. It was very tough taking biology classes taught in German, but I ended up learning a lot and improving my German vocabulary.

At the end of the semester, I began my internship. This was easily the greatest part of my year. My internship took place in the Stem Cell Biology Group at Fraunhofer Institute of Immunology and Cell Therapy. At the time of my internship the lab was almost exclusively studying Alzheimer's and consequently treatments for the neurodegenerative disease. I learned a lot of molecular biology techniques while participating in daily lab work. It was an invaluable experience that has influenced me in so many ways, and I am very grateful for having this opportunity.



Melanie(l) in lab with advisor Claire Fabian(r) at the Fraunhofer Institute of Immunology and Cell Therapy

Student Club News

BIOLOGY CLUB has some interesting programs continued from previous years that will incorporate getting the students of the Biology Department more involved on campus and in the community. The plan of action for the biology club includes community service activities such as hosting blood drives and Into the Streets. The club will encourage those within the major to pursue multiple options for post-graduate work. The club will be hosting numerous presentations featuring faculty and alumni in order to increase interactions between faculty, alumni and students. Overall, this club is looking forward to another awesome year. Any questions or suggestions should be directed towards biologyclub@etown.edu.

MEDICUS is a student-run organization dedicated to issues relevant to pre-health professionals. Our mission is to expose students to the ever changing medical world (through service projects, educational trips, and various other activities), and to aid in their preparation for post-graduate studies in the health field by providing speakers and information about various schools. We are involved in numerous medically oriented service projects, which give students valuable experience in the ever changing medical realm. This year, we are planning on introducing students to medical environments through volunteering and shadowing at places such as Pennsylvania State Hershey Medical Center and Lancaster General Health. The club is also planning on getting involved in activities such as Into the Streets and Relay for Life. Finally, speakers from different medical schools will be asked to come and speak to students at Elizabethtown College about the programs they offer. Through these speakers, students who are interested in pre-health professions can get the opportunity to learn about their interests and to gain confidence for what they want to do for the rest of their lives. Any questions or suggestions can be directed towards medicus@etown.edu.

TRI BETA is a National Biological Honor Society that is dedicated to improving the understanding and appreciation of biological study and extending boundaries of human knowledge through scientific research. This year members will spend their time facilitating interactive tutoring sessions, and acting as writing tutors for underclassmen. TriBeta will also arrange a guest speaker presentation, and a resume and cover letter workshop. If you have any questions feel free to email us at tribeta@etown.edu.



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

A Special Thank You

*to the Biology Students and faculty who
contributed to this Newsletter*

Biology Faculty

David Bowne, Diane Bridge, Jane Cavender,
Aaron Cecala, Jonathon Coren, Tom Murray,
Debra Wohl and Jodi Yorty

Biology Staff

Helen Bartlett, Assistant in Biology
Janice Davis, Administrative Assistant

How to Contact Us:

Biology Department
One Alpha Drive
Elizabethtown, PA 17022
Phone: (717) 361-1389
FAX: (717) 361-1243

2012 Homecoming News

Department of Biology Alumni Reunion
3:30 p.m. in the Masters Center Atrium
Saturday, October 20th

**Featuring Alumni from the Classes of
1967, 1972, 1977, 1982 and 1987**

We Hope You Can Join Us!

We would love to hear from you—

Please send us information about your professional and
personal life and provide a brief anecdote about your
years as a student at Etown. If you could give advice
to current students what would it be?

*Your comments will be published
in the event booklet*

**Submissions can be emailed to
biology@etown.edu
(please include your full name and class year)**