



Elizabethtown College

Biology Newsletter

Fall 2009

High School Students Travel to E-town for Summer Research Project



Students attending the Student Challenge Awards Program

This summer, eight high school students traveled from homes across the United States, to Elizabethtown College for a unique two-week learning experience conceived and led by Associate Professor of Biology Debra Wohl and Assistant Professor of Biology David Bowne. Sponsored by a grant from Earthwatch Institute, the project aimed to increase the students' civic responsibility and environmental awareness, and further our understanding of antibiotic resistance in the environment. The Earthwatch Institute is an international nonprofit organization that supports scientific advancement through "citizen science," research in which volunteers perform investigation-related tasks.

The Elizabethtown project, titled "Student Challenge Awards Program: Mapping Antibiotic Resistant Bacteria Across a Landscape," quantifies the distribution of antibiotic resistance across Lancaster County, PA, suggesting possible factors that might influence the level of resistance. The research focuses on *Enterobacter* spp., a bacterium typically harmless to humans that has demonstrated drug resistance in clinical settings.

As part of the investigation, the student volunteers—along with Bowne and two other team leaders, a graduate student from the University of Arizona and a high school chemistry teacher from Elizabethtown, PA—traveled throughout the county to collect soil samples. The sampling locations were randomly selected based on their varying degree of human contact. As a result, information from analysis of the samples should allow the researchers to weigh whether any antibiotic resistance they find might be connected to human use of antibiotics.

In Wohl's laboratory, the high school researchers isolated the bacterium from the soil samples and "grew" colonies. Then, they assessed the resistance of the bacteria to five commonly used antibiotics.

In Bowne's laboratory, the students measured the characteristics of the soil, including its pH, water content and carbon. Later, Bowne, with collaborators from Franklin & Marshall College,—will use an ICP (Inductively Coupled Plasma) spectrometer to look for trace metals. The data will allow the researchers to factor into their results a possible link between antibiotic resistance and resistance to these metals. According to Wohl and Bowne, the project is a win-win for them and the students; providing students with a really unique summer.

Click [here](#) to see a video that the students have put together about their research and experience in this program.

From the Chair...



Dr. Thomas E. Murray

Greetings Biology Alumni!

On behalf of the students and faculty, I'm pleased to share another alumni newsletter with you. As you can see, both students and faculty have had successful years. Congratulations to Dr. Debra Wohl who was tenured and promoted to the rank of Associate Professor last year. You can read about her work with Dr. David Bowne and their Earthwatch Institute Project this past summer in the pages that follow. Congratulations to Dr. Lee Ann Van Houten-Sauter '87 who is the winner of this year's alumni award. I hope you can join us to celebrate her achievements during Homecoming weekend.

There are many other things happening in the Department. We are currently searching for a Physiologist to replace Dr. Khristy Thompson who left the College over the summer. We wish Khristy well and look forward to a strong pool of faculty candidates. If you know of anyone who might be interested, information can be found both on the Biology Department and Human Resources web pages. We are also engaged in Departmental Self Study to make sure that the outcomes we establish for our students are being met. That process will take much of this year and should help guide our curriculum for the next several years.

Each year I point out that your feedback and support are vital to the Department. We are always looking for ways to strengthen our program, expand the opportunities for our students and broaden the reputation of the Department and the College. If you know of opportunities for student internships, research experiences, or employment, please let us know. I thank those of you who have contributed to support the construction of our wonderful facility and those of you who continue to support student research and scholarships. Your support makes a difference to our students every day. I look forward to seeing many of you at Homecoming.

TE Murray

Department News

Dr. David Bowne is collaborating with the Lancaster Conservancy to set up a long term ecological monitoring project on one of their properties. He is also working with colleagues at Franklin and Marshall College and Elizabethtown College Senior Mike Torre, on a stream restoration project.

Dr. Diane Bridge gave a presentation on the use of an invertebrate species to study genes involved in aging at an International Symposium in Berkeley and participated in a conference in New Orleans.

Dr. Jane Cavender was an invited presenter at the National Institute of Environmental Health Science.

Dr. Jon Coren has given presentations to community groups on stem cells and genetically modified food.

Dr. Tom Murray is working with colleagues at Penn State on the Conewago Creek Initiative, a multifaceted approach to restoring the Conewago Creek. The three year project is funded by the National Fish and Wildlife Foundation.

Dr. Khristy Thompson has left our department and moved back to Boston. We wish her well in all her future endeavors. This past spring, she presented her research at the Association for Psychological Science in San Francisco.

Dr. Debra Wohl was tenured and promoted to Associate Professor of Biology. Congratulations Deb! Dr. Wohl recently was a symposium speaker at the Ecological Society of America conference in Albuquerque, New Mexico. The title of her talk was, "Allergies, Asthma, and Eczema: Response to Disturbance of the Microbiota of the Newborn Gut."

Dr. Jodi Yorty had a manuscript entitled "Effects of a stress hormone on the function of tumor antigen-specific CD8+ T cells" accepted for publication in the journal BIOS. Student co-authors include Bryon Martinez '08, Elizabeth Sodomini '11, and Lisa Sether '09.

Research



(from left) Lindsey Evans, Becky Holler, Steve Hurst, Lisa Sether and Laura Critchfield

2009 PAS Presentations

Ten biology students along with Dr. Diane Bridge, Dr. Jon Coren, Dr. Khristy Thompson and Dr. Jodi Yorty presented the results of their research projects at the 85th Annual Meeting of the Pennsylvania Academy of Science that was held in Camp Hill, Pennsylvania in March.

Summer 2009 Student Research Activity

Six students and alumni 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.

Michael Torre, '10— During the summer I worked with Dr. Bowne to find out which stream properties have the greatest impact on amphibian abundance. In order to do this we took measurements of the physical properties, water parameters, macroinvertebrate populations, and surrounding landscape on 9 streams. We then sampled each stream for salamanders and examined the relationship between the measured variables and the calculated salamander density. Overhanging vegetation and substrate size had the strongest influence on amphibians. I started this project in the spring semester of last year and will continue wrapping things up this fall.

Stephen Hurst, '10—Over the summer I spent ten weeks working with Dr. Yorty doing research. We focused on two main projects. The first project focused on getting CD8+ T cells to better recognize tumors formed by T-antigen by changing T-antigen to a more ideal form. The second project was to evaluate the effect of corticosterone, a major stress hormone, on the immune response to tumors, as well as the ability of the tumors to grow in the presence of corticosterone. I will be continuing the projects throughout the school year.

Suren Rajakaruna, '09— I worked with Dr. Cavender investigating the relationship between the viral oncoprotein SV40 T antigen and the nucleolar host protein nucleophosmin (or B23). I cloned the nucleophosmin promoter out of human diploid fibroblast cell DNA and moved it into the luciferase reporter plasmid. This reporter plasmid was used to determine that the onco-protein has the ability to turn on this gene and produce more of the B23 protein. The function of more B23 in a tumor cells is not exactly known at this point; however, large numbers in tumor samples have been correlated to a worse prognosis for patients.

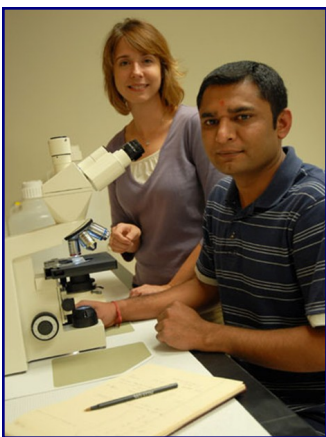
Stacey Lehman, '09— Over the summer I worked in Dr. Cavender's lab on the activation of the cell cycle and the ribosomal gene promoter. I found that the over-expression of the cyclin A promoter could activate more ribosomal gene transcription. To try and narrow this event to G1 or G2 phase of the cell cycle she employed serum starvation of cells in culture and found that the ribosomal gene was still activated, indicating that G1 cell cycle regulators, p53 and Rb are not necessary for activation of the promoter.

Margaret Kench, '10— I began a study in Dr. Cavender's lab to determine if micro or siRNAs are produced from several commercially available plasmids/cloning vectors, that directly impact the expression of the RNA Polymerase I but not RNA Polymerase II promoter.

Student Research Activity continued...

Kaitlyn Snyder, '11 and Kathryn Diamond, '10—This past summer, we worked with Dr. Debra Wohl under her grant given by the National Institute of Health. We collected data to investigate the relationship between antibiotics given to women during delivery and the prevalence of atopies (*hereditary allergy*) 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. With the permission of the participants, we collected the necessary information from the labor and delivery records from Hershey Medical Center and the children's' medical records from various local physicians' offices. This project is scheduled to go on until 2011.

Sandipkumar Savaliya, '10—In the summer of 2008, Sandip worked with Dr. Khristy Thompson at Harvard School of Public Health (HSPH). Before coming to Elizabethtown, Dr. Thompson had been working as a postdoctoral researcher at HSPH in the laboratory of Dr. Joseph Brain, professor and endowed chair of environmental health studies at HSPH. Funded by Dr. Brain's grant and Elizabethtown College, this joint research examined the mechanism by which manganese is transported to the brain through the cells in the nervous system that process input from the body's olfactory (sense of smell) system. "The manganese that is part of our diets does not pose a threat to our health because it enters the digestive system and is quickly removed from the blood by the liver," explains Dr. Thompson. "Inhaled manganese, though, is thought to be transported directly to the brain through the olfactory receptor neurons that reside in our olfactory epithelium." Using an experimental process first published a decade ago by Tufts University called methyl bromide treatment, the Elizabethtown team confirmed that the olfactory receptor neurons indeed were the transport mechanism of the manganese.



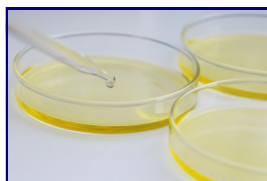
Dr. Thompson and Sandip Savaliya, '10

In addition to this cutting-edge research, Sandip was offered other research opportunities at HSPH. For example, the Elizabethtown student designed his own study using the methyl bromide treatment to look at inflammation on the nasal region following instillation of a high dose of manganese. He also had the opportunity to contribute to ongoing studies examining the toxicity of zinc nanoparticles to the lung.

While at Harvard, Sandip participated in several seminars – covering topics ranging from tutorials on writing scientific papers and guidance on applying to medical school, to seminars on infectious diseases and symmetric mutation. He also spent invaluable time shadowing Dr. Christopher Thompson, director of therapeutic endoscopy at Brigham and Women's Hospital, learning about a variety of unique endoscopic techniques.

For Sandip, the time at Harvard provided an exciting glimpse into his future career. "Every day was a new experience. The six weeks passed by, and I didn't even realize it," says Sandip. "I'm grateful for this opportunity that has strengthened my interest in going to medical school."

The Second Annual Scholarship and Creative Arts Day was held on April 21st. Biology had 16 students presenting their research. You may see the full program by visiting 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

Student Summer Experiences

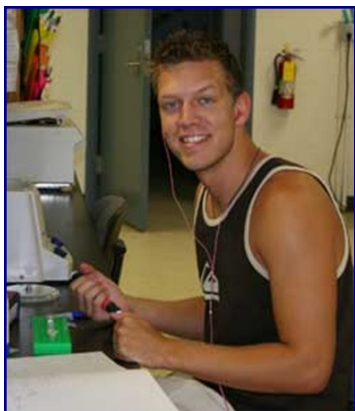
Many of our students spend the summer in research laboratories, pursuing internships, gaining experience “on the job” and volunteering in biology-related fields. Here are some personal accounts of what our students learn and experience from these opportunities. If you have openings for students, please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

Derek Faust, '10—This summer I worked at an engineering and environmental consulting firm, Rettew Associates. I worked primarily within the natural sciences service area, which included environmental scientists and geologists. I was able to spend about half of the summer in the field and the other half was spent in the office. The fieldwork included wetland delineations, stream assessments, macroinvertebrate sampling, stream walks, geological watershed assessments, and archaeological surveys. The time that was spent in the office was devoted to writing wetland reports, stream assessment and restoration reports. I also spent some time writing permits for the Pennsylvania Department of Environmental Protection and the US Army Corps of Engineers. Overall, the time spent in the field was a lot of fun and everything that I was given the opportunity to do was great experience.



Derek (center) electrofishing on Dubois Creek in Susquehanna County

Randall Derstine, '10—This past summer I conducted research under the supervision of a pharmacologist at the United States Army Medical Research Institute of Infectious Diseases [USAMRIID] located at Fort Detrick, Maryland. As the United States Army's primary institution for biodefense research, USAMRIID is the only laboratory within the Department of Defense equipped to handle biological agents at Biosafety Level 4. The mission of USAMRIID is to develop protective vaccines against biological agents that may be used in an act of warfare, or terrorism, against American soldiers. The particular laboratory I worked in was a BSL-2 classified virology lab that focused on several hemorrhagic fever viruses. A majority of my work involved pseudotyping of Lassa fever, a hemorrhagic fever native to Nigeria. I was also given the responsibility of maintaining cell lines, isolation and analysis of plasmid DNA, and of course, laboratory maintenance. When time allowed, some of the scientists were willing to show me some of the more advanced laboratory techniques. Besides gaining invaluable research experience, working at USAMRIID introduced me to the world of government research and the sensitive issue of national security. Before I passed my background check and obtained a government security clearance, I was not allowed to leave the sights of the scientists I was working for or walk anywhere without an escort. Perhaps the most thrilling experience was when I was given a tour of the BSL-4 facilities, where I observed scientists in their giant blue hazmat suits tending to Macaques, a type of monkey frequently used in biomedical research. Even though I could only observe these scientists from behind glass, to know that I was only inches away from some of the most deadly biological agents on earth was truly exhilarating.



Michael analyzing results

Michael Nelson, '10—My summer was spent on an island in St. Augustine, Florida surrounded by the Atlantic Ocean and the intracoastal waterway. When I wasn't spending my time at the beach (a lengthy 30 second walk from my room), I spent my time working in Dr. Peter A. Anderson's lab at the Whitney Lab for Marine Bioscience associated with the University of Florida. I worked on *Physalia physalis* also known as the Portuguese Man of War which is a really big jellyfish. The Anderson lab is one of the few labs in the world that study jellyfish, specifically the cnidocytes (stinging cells) that are a taxonomic characteristic of the phylum Cnidaria. What interests the Anderson lab is how the firing of these stinging cells is regulated. I spent my summer cloning what we believe to be a putative chemoreceptor, and if it is involved with the regulation of cnidocyte discharge it will be the first ever discovered. This past summer was extremely informative and I am glad I had the opportunity to experience research first hand.

Student Summer Experiences continued...

Lindsey Evans, '10—This summer I studied drug addiction and withdrawal in Dr. Sue Grigson's lab at Penn State Hershey Medical Center. I got to work with a brand-new system; they were writing the software as I was running my experiment. Once the rats learned that a certain flavor of Kool-aid provided the opportunity to self-administer drug we expected to see different licking behaviors for the drug-paired and control solution. Unfortunately, the rats did not really like heroin, or orange Kool-aid for that matter. It was an intense, fun experience which introduced me to a lot of interesting people and ideas.

Jennifer Schoonmaker, '10—This summer I had the pleasure of being a sea turtle intern at the Bald Head Island Conservancy (BHIC) in Bald Head Island, North Carolina. My primary job including patrolling the 12-mile beaches from 9pm-6am looking for mother loggerhead sea turtles (*Caretta caretta*) coming up on the beach to nest in order to tag, measure, and biopsy all of the nesting mothers. Then about 50 days later, I also got to participate in the nest hatchings and help the vulnerable little hatchlings make it safely to the ocean! Nest excavations, catching snakes, wildlife calls, kids' camps, and doing my independent research project on diamondback terrapins (*Malaclemys terrapin*) took up any little free time I had left! It was an amazing summer where I learned an immense amount of information about sea turtles and work as a field biologist, as well as working with some of the most active biologists and ecologists in the field! Working on Bald Head really helped me to discover my love for field research, and I cannot wait to do more work with both sea turtles and other animals in the future!

John Fuesler, '11— This past summer, I took part in an internship program at the Delaware Museum of Natural History working in the avian curatorial and research department under the supervision of Dr. Jean Woods, the avian curator. One of my responsibilities involved tending to the “bug room”, where a colony of dermestid beetles devours the flesh of the birds, in order to prepare clean skeletons for use in the collection. I participated in the skinning, measuring and tagging of various samples as well. I also was able to prepare spread-wing specimens, which are relatively new form of bird specimens used in collections.

Erin Reynolds, '10—For the past two summers, I have spent my days working as a Patient Care Assistant at Harrisburg Hospital. My roles while working on the Cardiac Telemetry Unit included taking and recording patient's vital signs, blood sugar measurements and EKGs. The most rewarding part of my experience involves the one-on-one patient interaction which I have while I provide elements of basic care. In addition to my work as a PCA, I was also able to shadow a Physician Assistant from a Hematology and Oncology practice. During my shadowing experience, I was able to observe patient consultations and rounds with the members of the practice. Both of my summer experiences have provided me with many learning opportunities.



*Jennifer Schoonmaker, '10
with a diamondback terrapin*

Taylor Jones, '10—This past summer I had the opportunity to work for the United States Department of Agriculture, Agricultural Research Service, Beltsville Area Research Center (USDA, ARS/BARC) in a molecular plant pathology laboratory. I worked on various projects dealing with plant viruses. My main research project was to try and develop a plant-produced microbial vaccine for avian coccidiosis. Avian coccidiosis (caused by the parasite *Eimeria*) is currently a devastating disease affecting poultry in the livestock industry. Since new, current vaccine resistant strains of this parasite have been showing up new methods of prevention are needed to successfully save the poultry industry. In my project, I genetically modified plant viruses (mainly *Potato Virus X*) to contain a specific coding region for a known antimicrobial animal peptide. This peptide was known to kill these disease causing parasites once incorporated into the infected animals system. After I altered the plant viruses to contain this peptide, I inoculated *Nicotiana benthamiana* (tobacco) plants with the virus. Once the plants were infected and were producing the peptide of interest, further research was done to make sure that the plants could be ground up and used as feed to vaccinate for avian coccidiosis. This internship was a great experience and I made tons of contacts which will help me in planning for future endeavors.

Student Summer Experiences continued...

Michael Hester, '10—During the summer, I had the opportunity to intern at Pinnacle Health's Tobacco Cessation Program. The Tobacco Cessation Program allowed me to experience what it is like to input data on the demographic use of tobacco in Central PA. I assisted in handing out literature to people interested in quitting, and participated in educating others on the risks of smoking and the benefits of quitting. Additionally I was able to sit in on group and one-on-one counseling sessions. A highlight of my summer internship was to shadow Dr. John Goldman, M.D. FACP, during which I learned about the diagnosis of infectious disease by medical history and physical examinations. Through Dr. Goldman I learned the importance of establishing a positive doctor-patient relationship and that it is central to the practice of medicine. Another component of the summer was going into the OR and witnessing first-hand the da Vinci Surgical System at work. By talking to doctors, surgeons, nurses and medical residents in the hospital, I have learned an appreciation and admiration of the responsibilities of hard work which are needed to become successful in the medical profession.

Study Abroad

Elizabeth Cunningham, '10—Most Americans and foreigners picture Australia as a vast empty desert but there exists a completely different environment in the far north east of the continent. This past spring I was given the opportunity to participate in a tropical rainforest field studies program with the School for Field Studies outside of Yungaburra, Australia. The group consisted of thirty students from across the United States and surrounding territories. We lived in cabins, eight people to each, in which we could see the dirt on the ground and the stars in the sky without looking through a window.

A “typical” day would start with the daily 5:45 a.m. wake up call thanks to the native Chowchilla bird. After waking up, we would walk a distance to the shower, being careful not to get any leeches, take a shower with the massive and terrifying huntsmen spiders, and then walk through the forest off to class (this time guaranteed at least one leech). Our classes included rainforest ecology, rainforest management, and socio-economic values of the rainforest. After having classes in the morning we would have lunch and then it was out into the field! Field exercises would range from 3-6 hours and included hikes through the forest for plant and animal identification or traveling to local areas to study geology or economy. After returning from a tiring day, we would have a traditional Australian dinner from our chef, Les, and then possibly back into the forest for a night class.

The fourth class and entire last month of the program was devoted to an independent research project. My research group focused on microbats while I focused specifically on microbats and their ectoparasitic infestations. Collecting the data was quite a challenge and involved camping in the forest for a week at a time. After setting up the bat traps, we would check for bats at 9 p.m., 2 a.m., and 5 a.m. and then promptly analyze the research participants. Past studies found only one microbat species that contained parasites but my research found five different types of microbats with infestations.



microbat research participant



pademelon

The best part of the semester was not only living in a giant family of thirty five (teachers lived on site) but getting to experience the tremendous wildlife. There were pine trees over 18 ft in diameter and huge fig trees, like the Cathedral Fig, which was over 130 ft in diameter and over 150 ft in height. On an average day you would see brush turkeys, pademelons, wallabies, bandicoots, spiders as big as your hand, and of course, can't forget the twelve foot amethystine and carpet pythons that lurked around at night.

Despite the deadly snakes, horrifying spiders, endless rain, floods preventing food delivery, and the total lack of technology; I would sign up for a return trip in the blink of an eye.

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. 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 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! This year we hope to rejuvenate an interest in the club with some great new ideas and activities! 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 is starting another very busy year. As a means to involve First Year students to a greater degree, the club is continuing Bio Buddies. This program, which was started last fall, pairs First Year Biology students with an upperclassmen who is willing to answer any questions the student may have. Additionally, plans to develop students' scientific writing continue to evolve with the development of a consulting service. The fall semester always proves to be a very busy one for Biology Club. Our activities include a table at Brinser Field's Midway Fair during Homecoming, creek cleaning in Elizabethtown for Into the Streets, and preparing meals for Ronald McDonald House in Hershey. As a means to provide students with additional resources, we are looking forward to hosting a panel of recent graduates to discuss the processes involved in pursuing higher degrees. Throughout the semester, Biology Club will be planning additional events in order to increase member participation and community involvement. *Any questions or suggestions should be directed toward biologyclub@etown.edu.*

TRI BETA The Rho Lambda chapter of $\beta\beta\beta$, a national biological honor society has been involved in the Elizabethtown College community for the past 13 years. $\beta\beta\beta$ has served to facilitate a deeper understanding of the biological sciences. In the past, this has been accomplished through tutoring, judging of local science fairs and organizing events with speakers accomplished in the study and practice of biology. Additionally, it is our hope to offer a paper-editing service for students who struggle with writing professional reports. We look forward to a successful and productive year! *Any questions should be directed to tribeta@etown.edu.*

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

This year Medicus and SIFE (Students in Free Enterprise) hosted their seventh annual Think BIG (Believing, Inspiring, Guiding) summer camp. The camp was influenced by a book titled, "Think Big," written by world-renowned pediatric neurosurgeon, Ben Carson. Carson grew up in inner-city Detroit and Boston and discusses his struggles and personal formula for success throughout his book. This summer the camp ran from June 21-26 and took in about 25 students from inner-city Lancaster elementary schools. Each day the students were taught an exciting business and science lesson. Six students from Medicus volunteered with this year's camp teaching science and business lessons: Stephanie Gingrich, Sarah Knapp, Casey Miller, Sarah Strohecker, Nicole Triner, and Taylor Wambaugh. The campers learned exciting science concepts and demonstrated them through the use of experiments and activities. On Chemistry day they investigated the properties of polymers and made slime. They also learned about acids and bases. On Ecology day the campers learned the techniques of using a compound microscope while examining plant specimens. The campers were even able to learn about simple heart anatomy through the dissection of an actual pig heart! The last day of camp was spent reviewing the concepts they had learned throughout the week in a jeopardy game. This camp was designed to show young kids the possibilities offered through science and business and to introduce opportunities offered by a college education.



Taylor Wambaugh '12 assisting campers in the use of a microscope

A Special Thank You

*to the Biology
Students and faculty
who contributed their
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and internship
experiences for the
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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!



2009 Graduates

Forty-four students received Bachelor of Science degrees from the Biology Department this past May. Sixteen in Bio-Premed, three in Biotechnology, ten in Bio-Allied Health, nine in Biology, one in Biology Secondary Education and five in Environmental Science. Among those who graduated, two graduated with the high distinction of *Summa Cum Laude*, three *Magna Cum Laude* and twelve *Cum Laude*. One student graduated through the Elizabethtown College Honors program and two graduated with Biology Department Honors. Among those who graduated approximately 24 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, Salus University, Clarion University, University of Alaska, University of Denver, Temple University Medical School, University of Pennsylvania, Michigan State, Towson University, Touro College, Ross University Veterinarian School, Seton Hill University, Lake Erie College of Osteopathic Medicine and Lebanon Valley College. Students pursuing additional study have enrolled in programs for Medicine (MD) (DO) (PhD), Physical Therapy, Veterinarian, Physician Assistants and cell and molecular biology. We congratulate our 2009 graduates and wish them well in their career and academic pursuits.



Elizabethtown College

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2009 Alumni Award Presentation



Dr. Lee Ann Van Houten-Sauter, '87

The *Dr. Charles S. Farver-Apgar and Dr. Bessie D. Apgar Biology Alumni Award* will be presented to the 2009 recipient, **Dr. Lee Ann Van Houten-Sauter, '87** at Homecoming on October 17th at 2:30 pm in Gible Auditorium located in the Masters Center for Science, Mathematics and Engineering. After receiving her Bachelor of Science Degree in Biology at Elizabethtown, *magna cum laude*, Dr. Van Houten earned her Doctor of Osteopathic Medicine at the Philadelphia College of Osteopathic Medicine in 1991. She currently has her own family practice and is President Elect of the New Jersey Association of Osteopathic Physicians and Surgeons. Dr. Van Houten is a Medical Inspector for Monroe Township Public Schools, Secretary of the New Jersey Osteopathic Education Foundation, Vice President of the Tri-County Osteopathic Society and the 2009-10 Chairperson of the Atlantic Regional Osteopathic Convention. She has received numerous awards over her career. Immediately following the award presentation, Dr. Van Houten will share her experiences with Alzheimer's Disease in family practice and how it affects the entire family. The Department of Biology is proud to present her with this award.
