



Elizabethtown College

# Biology Newsletter

Fall 2006

## Masters Center for Science, Mathematics and Engineering Construction Begins!



Construction of the Lyet Wing for biological sciences as of September 1st.



Breaking ground on the new Masters Center for Science, Mathematics and Engineering

Photograph by JTS Photography

On April 21, 2006 Elizabethtown broke ground for the Lyet Wing for Biological Sciences in the new state-of-the-art Masters Center for Science, Mathematics and Engineering. The project is expected to be completed by fall 2007. The Lyet Wing for Biological Sciences was named for Dr. J. Paul Lyet III '69 by his mother, *emeritus* trustee Dorothy Lyet. This project will add 30,000 square feet of new laboratories and research facilities for the biology program which has grown significantly over the past 15 years. This new wing will be constructed to join with Musser and Esbshade Halls to form the Masters Center. The building design will feature technologically advanced laboratories that will support the emphasis on investigative learning and research.



The Lyet Wing for Biological Sciences is named for Dr. J. Paul Lyet III '69 (on right) by his mother, *emeritus* trustee Dorothy Lyet (middle), shown with President Long (left).

Photograph by JTS Photography

## From the Chair...



*Dr. Thomas E. Murray*

Greetings Alumni!

The 2006-07 academic year is upon us and there is much to report in this edition of the newsletter. We are starting the year without our friend and colleague Nancy Sabulsky who passed away last year. Thanks to all of you who passed along kind thoughts to the department and to Nancy's family.

This is the last year we'll be housed in Esbenshade Hall. The Lyet wing of the Masters Center for Science Mathematics and Engineering broke ground in April and will be opening in August 2007. The 30,000 square feet facility will be our new home with nine teaching laboratories, ten student research labs and other specialized spaces including an aquarium room.

This year we will also be challenged by searching for two new faculty to replace the retiring Drs. Dively and Polanowski. As many of you know, they will not be easy to replace and we commend them for their years of service to our students.

Thanks to those of you who attended our student research symposium last April. The student researchers appreciated your thoughtful questions and interest in their work. We'll be repeating the event again next spring and will let you know more about that after the first of the year.

The Department congratulates Drs. Jon Coren and Diane Bridge who were tenured and promoted to the rank of Associate Professor, and Dr. Jane Cavender who was promoted to Professor. Thanks to those of you who took time to write letters of support for these three excellent teacher-scholars.

And the department welcomes Mrs. Janice Davis as Editor of the newsletter, but more importantly as Assistant for the Department. Janice will be coordinating our alumni survey this year. I ask you all to respond to that survey so that we can continue to provide the very best education for our students.

Lastly, thanks to those of you who have supported and continue to support the Biology Department through generous gifts to the new building or to our student research endowment. Your efforts help make much of what the department does possible.

A handwritten signature in cursive script that reads "T.E. Murray".

## Faculty and Staff Activities

The Biology Department Faculty had another tremendous year. In addition to teaching their full load of courses, they were extremely active both professionally and in service to the College. The faculty received continued valuable support from Dr. Jodi Yorty and Dr. Debra Frielle who once again provided adjunct help during the year. Jodi will be working for us full time this year temporarily replacing Jane Cavender who is on sabbatical. Jane is spending the fall working on her research, funded by her third consecutive NIH grant.

The faculty presented 25 papers and posters at scientific meetings around the country. Twelve of those presentations were with students at the 2006 Pennsylvania Academy of Science meeting, three were with students at the regional meeting of *Beta Beta Beta*, and the rest were at a variety of national and international conferences in their disciplines.

They also wrote grants, served as reviewers of manuscripts, reviewed grants and fellowships for outside agencies like the National Science Foundation and chaired sessions at professional meetings.

They served on campus wide committees and were leaders on campus wide initiatives. And as always, they taught and served as advisors to more than 160 current students and even greater numbers of alumni.

## RESEARCH



*PAS presenters from left to right: Robert Burke, Linda Nilsson, Rachel Levine, Steven Choc, Megan Gowens, Alicia Alcamo, Yasunori Nagahama, David Hamel and Alex Theofiles*

### 2006 PAS Presentations

Nineteen biology students, some pictured on the left, presented the results of their research projects at the annual meeting of the Pennsylvania Academy of Science.

### Summer 2006 Student Research Activity

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

**Valerie Bawell '07 and Emily Ward '07,** We had the privilege this summer to intern for ten weeks with Dr. Wohl. The first project dealt with research on the plant pathogen *Erwinia amylovora*. Dr. Wohl had directed prior research on this bacterial pathogen last fall and spring. This summer we collected more soil samples from local apple orchards in order to determine the presence of the plant pathogen in soils near trees exhibiting disease symptoms, as well as soils near healthy trees. Detection of *E. amylovora* involved extraction of DNA from soil samples and amplification of a small segment of *E. amylovora* DNA using PCR. The second project consisted of perfecting a method to isolate *Escherichia coli* from water samples. This methodology was preparatory for experimentation in fall analyzing the correlation between bacterial resistance and riparian buffers. Additionally, this summer Valerie had the opportunity to further research and develop contacts to advance a project started last spring that investigates the relationship of antibiotics given to pregnant women during delivery and the risk of the delivered child developing eczema. More research is anticipated this fall in further developing this correlative research.

**Alex Theofiles '07,** This summer, I worked in the lab of Dr. Keith Cheng at The Penn State University College of Medicine, Jake Gittlen Cancer Research Institute. The project to which I contributed was the *Hydra* Atlas, a web-based anatomical and cellular guide to the simple cnidarian, *Hydra*. This project included the development of new histological and cytological techniques for dealing with an animal with only two cell layers. The Atlas will contain pictures of each cell type found in *Hydra*, as well as histological sections of *Hydra*. It is our hope that this will serve as a resource for the research community and the public at large. It will also be a repository for *Hydra* In Situ RNA Hybridization data, to be later linked with genomic data. Another aspect of this work is the development of preliminary cell recognition software. Because pictures of good quality single *Hydra* cells are available, it may be possible to train a computer to recognize the few (only about 20) cell types of *Hydra* before moving to a more complex model like vertebrates.

**Yasunori Nagahama '07**, I was blessed with a splendid opportunity to work in Dr. Coren's lab over the past summer. My research involved building the human genomic library, constructed in the PAC vector pJCPAC-MAM2 that has been generated in Dr. Coren's lab. The vector can be effectively amplified in human cells as well as in bacterial cells, and thus it will be a powerful tool in functional studies of genes. This library will enable us to investigate the regulation of genes, gene boundaries, transposable elements, and alternative splicing. Approximately 29,000 additional clones were manually arrayed this summer, with the total number of the library members being about 115,000. Also, the average insert size of random clones was analyzed by use of a restriction enzyme and Field Inversion Gel Electrophoresis. Furthermore, the construction of a pooled second-generation library used for screening purposes was initiated this summer, and about 20% of the pooled library has been completed. This second generation library, once completely finished, will be screened by PCR with gene probes to better estimate the library coverage. It will be also utilized to identify clones containing specific genes, thereby enabling further studies. Through this research opportunity, I was able to obtain invaluable experiences of working closely with Dr. Coren and gaining more knowledge of genetics.

The Cavender lab was in full swing this past summer. Students **Meghan Gowens '06**, **Linda Nilsson '06** and **Angela Mitchell '07**, worked tirelessly to finish senior projects and begin new ventures in the laboratory. Meghan's work on Nucleophosmin/B23 and SV40 T antigen was presented at the International DNA Tumor Virus Meeting held in La Jolla, CA at the Salk Institute this summer! Meghan has just begun working in the Laboratory for Tumor and Stem Cell Biology at the NIH National Cancer Institute in the IRTA program. She is working with Dr. Astrid Baege in the laboratory of Dr. John E. Niederhuber, the Acting Director of the NCI. Linda Nilsson finalized an ongoing project on the ribosomal gene enhancer and the Ku autoantigen and she currently has her sights set on graduate school. Angela Mitchell is just beginning her undergraduate research career as a rising junior. She will continue her investigation of the maintenance of cellular transformation by SV40 T antigen.

**Joseph Hines '07** and **Curtis Nolt '07**, spent 10 weeks during the summer in southern California conducting research on the role of vascular endothelial growth factors in the simple invertebrate *Hydra*. They worked at Pomona College in collaboration with Dr. Bridge and Dr. Daniel Martinez, a faculty member at Pomona College.

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## 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 examples of what our students learn and experience from these opportunities. If you have openings for students, please let us know.

**Megan Cappos '08**, I am currently a junior Environmental Science major. This previous summer I spent a month in Costa Rica at the School for Field Studies, studying sustainable development, taking 3 classes; tropical ecology, natural resource management, economics, and I did research in a forest reserve. I wrote a lengthy paper on the research I did in the reserve that consisted of doing bird counts, tree transects, and canopy cover. My overall experience was well worth it. I enjoyed every minute and learned so much.

**Audrey Hitz '08**, As a Bio-Prevet Major, I was excited to get the opportunity to work at Annville-Cleona Veterinary Associates in Annville, PA. I worked as a receptionist where I was busy weighing and checking-in the small animals, a veterinary assistant during appointments, and I also went along to farm visits for pregnancy palpations and on-the-farm surgery. From that experience I am now positive I want to be a veterinarian and am so much more motivated in my schooling. It was definitely a great experience!

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**Erin Fisher '08**, This summer I had the opportunity to participate in the Geisinger Weis Center for Research summer internship program in Dr. Gerda Breitwieser's laboratory. Dr. Breitwieser's lab focuses on the G-protein coupled Calcium-sensing Receptor (CaR). I was involved in the investigation of potential peptide modification or regulation of the CaR by the ubiquitin-like proteins SUMO(1-4) and Nedd8. Throughout the summer, I utilized various laboratory techniques, most notably immunoprecipitation and western-blotting, in order to determine if various protein-protein interactions were occurring.

**Rebecca Holler '09**, During my summer break I worked in a bio lab working with spiders. I worked with the family of spiders known as Lycosids, or wolf spiders. This summer I worked exclusively with *Pardosa milvinia*. I did research looking at how much silk was produced by these spiders in differing stages of life and in different environments. I also presented past research at a meeting of the American Arachnology Society. The research presented there was based on research using *Hogna helluo* spiders. In addition to research, care and maintenance of the spiders was also a large part of my work.



*Rebecca Holler '09  
working with Lycosids*

**Krysten Jones '07**, This summer I had a summer internship at Hanson Technologies in Carlisle, PA. While there, I aided in the development of various biosensor assays for bacterial pathogens, concentrating on Salmonella limits of detection and cross-reactivity. The biosensor assays and results were used for qualification and use with the company's newly developed biosensor, The Hanson Leopard Array Biosensor (HLAB-2020).

**Laura Kubica '07**, This summer I was awarded a ten week fellowship, Summer Student Research Fellowship, at Hartford Hospital in Hartford, CT. I worked

with Dr. Peter Schnatz, D.O. in the OB/GYN Department. Throughout my fellowship, I shadowed physicians in all areas of medicine and performed research. My research project was to see if low birth weight in women was associated with cardiovascular disease in adulthood. Contrary to recent research, we found that there was no significant relationship between these two factors. The article is a work in progress and will be submitted for publication at the end of the year. In addition to research, I shadowed doctors in Interventional Radiation, Sports Medicine, OMT, Emergency Medicine, Labor and Delivery, and Cardiology. This fellowship provided an opportunity for me to experience the difficulties and successes faced by physicians on a daily basis.

**Stephanie Petry '07**, During the summer, I had the great privilege of interning at the Dauphin County Coroner's Office located in Harrisburg, Pennsylvania. As their first intern ever, I was able to assist in numerous autopsies, visit various crime scenes, take pictures at these crime scenes, and help with paperwork. Under the supervision of Graham Hetrick (the Dauphin County Coroner), Dr. Wayne Ross (the Medical Examiner for both Dauphin and Lancaster County), Patty Garber (the Chief Deputy) and countless others, I was surrounded by immensely knowledgeable professionals who guided me each day. With their help I was not only able to gain insight into the field of forensic pathology but also to experience things in which I grew as a scientist and a person.

**Lisa Wherley '08**, I spent 2 1/2 weeks in July on a medical mission on the island of Taveuni, Fiji. This project was sponsored by the Taveuni Rotary and was designed to help stop the spread of scabies and head lice on the 27 mile long Pacific island. About 20 volunteers worked on the project, including 4 doctors and many nurses. At each village we registered the families, helped them to boil their clothes and mop their houses to kill the scabies, set up medical stations to check for scabies, administered medicine, and even performed some on-site surgeries. I was able to help with all aspects of the project and even participated in the Operating Room with the more serious surgeries. This wonderful experience allowed me to immerse myself in this new culture, and I learned that the Fijian people are the friendliest and most appreciative people I have ever met.

## Student Club News

**MEDICUS** is off to a great start this year providing members with excellent opportunities to increase their knowledge of the medical world as well as strengthen their resumes! There are many great service opportunities planned for the upcoming year such as participating in a Juvenile Diabetes Research walk, volunteering at the Child Life Center at Hershey Medical Center, and making breakfast at the Ronald McDonald House in Hershey. At Homecoming we hope to have an Alumni Panel to provide students with views on "Real Life after E-town", a look at professional school and life in the field. In the spring we plan to host a hair-a-thon and have a college-wide fundraiser for Locks-of-Love. Although this is a little glimpse at what is planned, you can see it will definitely be an exciting year!

**BIOLOGY CLUB** The Biology Club is a student run organization geared toward service and activities related to the biological sciences. The Club's ongoing activities include the restoration of a local wetland, planning events for students and faculty in the department, the organization of a yearly trip for biology students, and participation with Chemistry Club in an Earth Day project in which Elizabethtown students go to a local school to teach about topics related to the environment. In the future, the club plans to hold movie nights as a way for students to take a break from studying.

**TRI BETA** *Beta Beta Beta* is the national honor society in the biological sciences. The Elizabethtown College chapter is Rho Lambda and was founded in 1996. Membership in Tri Beta is limited to those students in good academic standing within the biology department and those students who are willing to do service to the college as a part of their membership. For instance we are responsible for tutoring majors and non-majors in the General Biology Courses. This coming year the Elizabethtown College Rho Lambda chapter will host the Northeast 2 Regional Convention on March 24, 2007. The Regional Convention is a place where students may present their completed or ongoing research in either poster or oral presentation formats. We would like to invite all alums to register and attend this exciting day of scholarship! Questions about the conference and other aspects of the organization may be directed to RhoLambda@etown.edu.

### Think Big Program

The 2006 Elizabethtown College Think B.I.G. camp took place from August 9th to the 11th. Jessica Hoagland, Laura Kubica, Tiffany Kulp, Allison Rahtes, and Matt Barr from the Medicus club worked in conjunction with students from S.I.F.E. to run a summer science and business camp. Inner city students from Martin Luther King Jr. and Wharton Elementary Schools located in Lancaster traveled to the college to learn about physics, biology, chemistry, business ethics, credit card use, creating their own store and much more! One of the highlights of the week was the biology lesson on microscopes and fetal pigs taught by student, Alex Theofiles. The week ended with parents joining their students on Friday for a graduation ceremony complete with diplomas given by President Long. The camp was started by Bozho Todorich '03, and has continued the past five years. Over the past two years it has grown and has become heavily funded by the Alcoa foundation. The generous gift along with the work of the student volunteers has truly fulfilled the camp's mission of Believing that kids can reach their potential, Inspiring them to experience new opportunities and set new goals, and Guiding them during a fun and educational week at College!



*Student's learn about fetal pigs*

## A Special Thank You

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

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## Biology, Chemistry & Biochemistry Research Presentations and Alumni Reunion

The Annual Biology & Chemistry Research Symposium and Alumni Reunion took place on Friday, April 21, 2006. The following students made presentations: Alicia Alcamo, Abbas Alibhoy, Robert Burke, Wendy Chandler, Steven Choc, Meghan Gowens, Lindsey Gruenewald, David Hamel, Katherine Heberlein, Heather House, Rachael Levine, Melissa Marschner, Bryon Martinez, Yasunori Nagahama, Linda Nilsson, Tracee Popielarczyk, Leah Robinson, Amy Valkovec and Emily Ward. This annual event gives students the opportunity to showcase their research and interact with Alumni. Following the poster presentations there was a Student-Alumni panel discussion which gave students an opportunity to discuss their future plans with alumni. Alumni were then joined by faculty for a relaxed reunion dinner at the Raffensperger Alumni House. **Mark your calendars the next symposium will be held on April 20, 2007.**

### 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!

### 2006 Graduates

Thirty-two students received Bachelor of Science degrees this past May. 12 in bio-premed, 10 in biology, 4 in bio-allied health, 3 in biotechnology, 2 in bio-secondary education and 1 in environmental science. Among those who graduated approximately 20 students will continue their education this year and have been accepted at the following colleges and universities: Ohio State University College of Medicine, Pennsylvania College of Optometry, Pennsylvania State College of Medicine Hershey, Tufts University Cummings School of Veterinary Medicine, Ohio College of Podiatric Medicine, Stony Brook University, Philipps Universitaet in Marburg Germany, Marymount University, University of Toledo, Thomas Jefferson, Cleveland Chiropractic, Temple University School of Pharmacy, Thomas Jefferson University. Students pursuing additional study have enrolled in programs for Medicine (MD), Nursing, Anthropology, Physical Therapy, Ecology, Chiropractic, Pharmacy, Optometry, Veterinary Medicine, Podiatry and Secondary Education.



## Elizabethtown College

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### 2006 Biology Alumni Reunion and Alumni Award Presentation At October 21st Homecoming

**Dr. Craig Fultz** is the 2006 recipient of the **Dr. Charles F. Farver-Apgar and Dr. Bessie D. Apgar Biology Alumni Award** which will be presented during the 2006 Homecoming festivities on October 21st.

Dr. Fultz graduated from Elizabethtown College in 1979 with a B.S. in Biology. He completed medical school at the Pennsylvania State University College of Medicine in 1983 and completed his orthopaedic surgery residency in 1988 at the Milton S. Hershey Medical Center in Hershey, PA. Dr. Fultz was attending orthopaedic surgeon for ten years and an Assistant Professor of Surgery in the College of Medicine of the Pennsylvania State University. He is currently serving as President of Orthopaedic Surgeons of Central Pennsylvania where he is an attending orthopaedic surgeon. He has been a guest lecturer at both the Dauphin and Lancaster County Bar Associations and at Community Educational Seminars.

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### Alumni Survey

Every five years, we survey our alumni to assess the curriculum and the opportunities we provide to our students. We would appreciate your taking the time to complete this survey and update your personal information. You may access this year's survey by visiting the following website:

<http://www.etown.edu/Biology.aspx?topic=Alumni+Survey>

Thank you for your help and support!

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