BIOLOGY
LAFAYETTE
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MELISSA HABER '12 RECEIVES EPA FELLOWSHIP

Melissa Haber '12 (Piscataway, N.J.) has received the Environmental Protection Agency's Greater Research Opportunity fellowship, which will finance research supplies and provide tuition assistance and a stipend during the semester. The fellowship also includes a three-month internship with the EPA next summer.

Haber's passion for biology began in high school and was further piqued through a two-week externship at Rockefeller University in New York City during her first year at Lafayette. She's looking forward to the challenges of conducting research outside academia.

"[The field of] biology is always changing," she says. "There are new discoveries every day and I love to be a part of the exploration. Entering the EPA project will force me to conquer the steep end of the learning curve quickly, which is a valuable skill."

Haber has worked extensively with **Laurie Caslake**, associate professor and head of biology, on research using microscopic bacteria to strengthen soil. Through Caslake's collaborative National Science Foundation grant, Haber spent this summer working with Jason DeJong, associate professor of civil and environmental engineering at University of California-Davis. They researched a process that potentially could be used to strengthen the soil beneath structures where natural disasters frequently occur. ■

PROF. WAYNE LEIBEL HONORED FOR LIFETIME ACHIEVEMENT

Wayne Leibel, Kreider Professor of Biology, and Christina Chen '11 observe cichlids in Kunkel Hall.

Throughout his career, Professor **Wayne Leibel**'s hobbies and scientific interests have often overlapped.

Since childhood, Leibel has raised tropical fish, maintaining large collections in aquariums in his home. A family of tropical freshwater fish called cichlids (pronounced SICK-lids) has captured his interest most, both for their interesting behaviors and their beauty. Cichlids are one of Leibel's main areas of research, and he incorporates much of this work into his courses.

The American Cichlid Association has made Leibel a Guy Jordan Fellow, which honors those who have made significant lifetime contributions to the advancement of the knowledge and appreciation of cichlids.

Leibel, Kreider Professor of Biology, is the eighth person to be given the honor since the first recipient was named in 1987. "I am humbled by and proud of this recognition for what has been a labor of love, one that will hopefully continue for years to come," he says.

The complicated behavior of cichlids is one reason for Leibel's particular interest in them versus other aquarium fish. Cichlids are parental, guarding and raising their offspring, which is unusual for fish that typically scatter large numbers of fertilized eggs. Because of this behavior, they have evolved elaborate colorations and courtship behaviors, and have speciated dramatically. There are about 2,500 species, with a wide variety of colors and patterns.

In the classroom, Leibel uses cichlids as an example of explosive, rapid evolution and speciation. He talks about them in his Evolutionary Biology course, as well as in his senior seminar on Molecular Evolution. He is working with biology major **Christina Chen '11** (Westfield, N.J.) on female territoriality in the "convict" cichlid. Convicts are medium-sized black-and-white-striped cichlids from Central America that serve as a model system for behavioral studies, particularly concerning territoriality and mate choice. Other students also have done honors and independent research with Leibel on cichlids.

"As a trained scientist, my interest in cichlids transcended the obvious aesthetic charm of these animals to their evolution and behavior. My contribution to the hobby

(Continued on page 2)

BIOLOGY

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LAFAYETTE COLLEGE

12/10 • 3K

FROM THE DEPARTMENT HEAD

As the calendar flips to December and faculty and students alike look forward to a well-deserved Christmas break, we celebrate another year of progress toward our collective goal of making the Lafayette biology program the best it can be now and into the future.

Marked by passion in teaching and research, our faculty continues to engage students in critical thinking and active learning in our courses and research labs. Recently, our assessment of student learning indicated a need to focus on the acquisition and presentation of data more intensively throughout our curriculum. To this end, the General Biology laboratory—thanks to **John Drummond**—has again been tweaked to make each lab more data intensive and inquiry driven. With support from the McCutchen Foundation, the newest addition to the biology department, a pontoon boat, allowed Professor **Nancy Waters** to develop Advanced Aquatic Ecology. Professors **Megan Rothenberger** and **Anna Edlund** have developed additional new courses. Professor **Manuel Ospina-Giraldo** has firmly established Genomics in the curriculum and tweaked his specialty course into Essentials of Plant Infectious Disease.

Professor **Robert Kurt** continues to administer the health and life science minor, which is attracting students from across the campus. Culminating in fall 2010, Kurt was intimately involved in our three-year PKAL Facilitating Interdisciplinary Learning project in the STEM disciplines. We continue to review and refine our program with an eye toward the future of biology in the context of the increasingly multi- and trans-disciplinary life sciences.

What remains constant in all of this positive change is our commitment to providing inquiry-based research experiences for our students through vigorous and rigorous independent research, honors research, EXCEL Scholars, and Nalven Summer Scholars programs. These research experiences routinely culminate in student-faculty presentations at regional, national, and international professional meetings and co-authored publications. We are, justifiably, proud of our students and their accomplishments.

The neuroscience program continues to be successful in attracting and graduating robust numbers of excellent science students. For the next three years, this program will be ably led by Professor **Jim Dearworth**. We, along with psychology, will continue to enhance and expand this very successful program.

Enjoy the newsletter. As always, we love to hear how you are doing.

Laurie

LEIBEL RECEIVES AWARD

(Continued from page 1)

has been to make understandable through my writing the science of cichlids to people who might otherwise not appreciate it.

My contribution to the science of cichlids has been as a conduit for hobbyists to contribute their observations to the cichlid science community," he says.

Leibel has been teaching at Lafayette since 1983, and served nine years as head of the biology department. He helped create the neuroscience program along with Provost Wendy Hill and other colleagues from the biology and psychology departments.

Leibel has published about 250 articles on cichlid biology, mainly for popular science magazines, and has written two books on new world cichlids. He also has been an invited speaker at conventions and workshops throughout the country. He has edited the American Cichlid Association's journal for eight years, and has served on the association's board of trustees many times, including twice as chairman. Most recently, he has been in charge of administering the association's yearly grant program that funds cichlid research, primarily helping doctoral and postdoctoral researchers to complete their studies. ■

INTERDISCIPLINARY COURSE MERGES ART AND SCIENCE

Art and science are closer cousins than they are often recognized as being. That is the theme of a new cross-disciplinary course, taught by biology and art faculty, that explores the connected history and current intersection between the two fields.

Art, Neuroscience, and Consciousness was taught by **Elaine Reynolds**, associate professor of biology, and **Ed Kerns**, Eugene H. Clapp II '36 Professor of Art. The course is an extension of the Emergent Patterns project, where art and science students worked with Kerns, Reynolds, and **Chun Wai Liew**, associate professor and head of computer science, to produce the *Computation, Vision: Emergence* exhibition. Funding for the course was provided by a grant from the Andrew W. Mellon Foundation.

The class studied the connections between art and science that have existed over time, and then examined the current interaction between art and neuroscience in understanding visual processes, perception, creativity, and consciousness. They also looked at how the fields can work together to produce models to further understanding of these topics.

"We hope that the course will broaden student thinking and get them to approach their discipline in a different way. It is really a different approach to problem solving—if you think about a problem from a different perspective, then you may be able to see a new angle to its solution. I also think the students gained a tremendous amount of respect for each others' disciplines and a new viewpoint on the universality of knowledge," Reynolds says.

Students and faculty from art, biology, computer science, electrical and computer engineering, and mathematics explored the connections between art and science in a project that culminated in the exhibition *Computation, Vision: Emergence.*

The class drew the interest of neuroscience, biology, psychology, and art majors, as well as several students who were majoring in two disciplines involving science and humanities.

"I took this class because I had not really had any exposure to art throughout my education and thought it would be interesting to see what correlations could be made through the study of art and neuroscience—two seemingly unrelated

(Continued on page 7)

STUDENTS EXPLORE THE EFFECTS OF DRUGS ON THE BODY

The members of the Class of 2013 weren't even born when the anti-drug public service announcements featuring the egg in the frying pan first started airing in 1987, but the "This Is Your Brain on Drugs" message of those television ads has found new life in a First-Year Seminar.

Taught by **James Dearworth**, assistant professor of biology, the course covered how society perceives what drugs are, drug usage, and the physiological effects of drugs on people. Students compared readings by authors from various disciplines—including biology, neuroscience, psychology, philosophy, anthropology, history, English, and theater/film to understand different viewpoints and how opinions on this subject have changed over time.

"Being a neuroscientist, I have always been interested in knowing how the nervous system works. Given the opportunity to teach a First-Year Seminar, I thought an engaging topic to freshman might be to discuss how drugs affect our brains and our behaviors," Dearworth says.

Szu-Ying (Sandy) Chen (Bangkok, Thailand) had Dearworth's course at the top of her list of First-Year Seminars she was interested in taking. "Although I am geared more toward pursuing a degree in chemical engineering, I do plan on taking a minor in biochemistry because I have always been interested in understanding how chemicals affect our brain and body—which is exactly what I gained from this class," she says.

The course covered the biological composition of drugs and how they affect the brain and people's behavior. Initially, the class focused on two drugs: alcohol and mescaline, a hallucinogen derived from the peyote cactus and originally used by Native Americans during religious ceremonies. Students were required to write papers on each of these drugs and advocate for either using the drug or argue against it.

Andrew Bahr (Richmond Hill, N.Y.) wasn't sure what to expect when he signed up for the course, other than an emphasis on reading and writing. However, he was surprised by how much he got out of the class.

"I never heard of mescaline before in my life, but after listening to the lecture and writing a paper about it, I'm now smart enough to know not to use that drug," he says.

At the end of the semester, students worked in teams to develop a presentation that argued either to legalize or to illegalize a drug—such as alcohol, nicotine, marijuana, heroin, or cocaine. They were required to define the drug, how it affects the brain, provide reasons why it should be legalized or illegalized, and propose a plan to carry out its legalization or illegalization. Students were required to find, read, and critique primary literature sources to support their presentations.

In addition to classroom work, the students traveled to Philadelphia to see the "Body Worlds 2 & The Brain" exhibit at the Franklin Institute. Included in the exhibit were plastinated lungs of smokers and human brains. They also went to College Theater's presentation of *Inherit the Wind* at the Williams Center for the Arts.

FACULTY AND STAFF UPDATE

PHIL AUERBACH, technician III, continues to perform all of the complex and technical jobs in the department including: van driver, pontoon pilot, cockroach catcher, delivery man, mister fix-it, purveyor and purchaser of fine turtle and mouse chow. He also is incredibly adept at salvaging pieces from old lab equipment for constructing new cutting-edge lab equipment. He continues to find ways to assist all of our diverse interests and does so with unflappable good humor.

LAURIE CASLAKE, associate professor and head, taught Microbiology in the fall and worked with three different independent research students throughout the school year. Two manuscripts were accepted for publication with student co-authors. Research presentations at the American Society for Microbiology and the Pennsylvania Academy of Science Meeting included two students as co-authors. Caslake has an active grant with collaborators at the University of California-Davis to study microbial strengthening of soil. She spent one week there in the summer, and **Melissa Haber '12** spent eight weeks there performing research. Caslake serves as the chair of the Undergraduate Research Fellowship Program for the American Society for Microbiology.

This year, **JAMES DEARWORTH**, assistant professor, taught Comparative Vertebrate Anatomy, a new First-Year Seminar titled "This is Your Brain on Drugs," and General Biology II. Six students were co-authors on three abstracts presented at the Pennsylvania Academy of Science, the Lehigh Valley Society for Neuroscience Undergraduate Research Conference, and the 13th Annual Vision Research Conference. Ten students were co-authors on three papers: one published in *Visual Neuroscience*, a second published in *Vision Research*, and a third currently in press in the *Journal of the Pennsylvania Academy Science*.

In fall 2009, **JOHN DRUMMOND**, biology laboratory coordinator, taught eight laboratory sections, and in spring 2010, he taught six laboratory sections while also supervising 16 teaching assistants who helped facilitate the labs. He conducted a monarch butterfly tagging program for second-grade students at Blue Mountain Elementary East in Schuylkill County, Pa. Drummond attended the Association for Biology Laboratory Education conference in June 2010 in Halifax, Nova Scotia.

The first year for **ANNA EDLUND**, assistant professor, was filled with establishing her research laboratory to study pollen cell biology in the mouse-eared cress flower of *Arabidopsis thaliana*, and teaching Developmental Biology. Students in Edlund's classes keep journals, and she is collaborating with Meena Balgopal, professor at Colorado State University, to study the value of such contemplative and analytical journaling. Anna mentored three independent research students in the spring and one EXCEL student over the summer. She gave a research talk and served on an education panel at the Northeast Society of Developmental Biology meeting in Woods Hole, Mass., and presented a poster at the International Congress on Sexual Plant Reproduction in Bristol, England. Edlund also collaborated on a video on pollination and plant fertilization called "Fertile Eyes," at www.youtube.com/watch?v=6pHGN04CPEM.

BERNIE FRIED, Kreider Professor Emeritus, continues to be an asset to the department with his collegiality, productivity, and willingness to mentor students despite his retirement. He continues his excellence in publishing research articles and mentoring student research. Last year Fried published 15 articles and supervised six summer research students.

CHUCK HOLLIDAY, taught Human Physiology and Marine Biology in the spring semester. He published two papers on the biology of cicada killer wasps in 2009-10. Holliday was on sabbatical leave last summer and fall, doing field work on cicada killers in the mining ghost town of Ruby, Ariz., just a few miles north of the Mexican border, where he used his travel trailer as a field research lab. There he learned that female cicada killers are vigorous little thieves, stealing from each other the paralyzed cicadas on which they lay their eggs and the underground nest cells in which the cicadas are placed. He also discovered that as many as 20 percent of the paralyzed cicadas brought to the nesting area by female wasps are taken from them by roadrunners and Western kingbirds.

ROBERT KURT, associate professor taught General Biology during the fall semester, and Cell Biology with practicum and Infectious Diseases with practicum in the spring semester. Kurt supervised five independent research students in the fall and spring semesters. Two manuscripts were published with Lafayette students as co-authors. One research student presented her work at the Pennsylvania Academy of Science meeting. Kurt also served as an academic advisor to 16 students, is working on the second year of a three-year NIH grant with his research students, and served on the ad hoc Life Sciences Committee.

In fall and spring semesters, **WAYNE LEIBEL**, offered Evolutionary Genetics and Evolutionary Biology and oversaw the independent research of **Christine Chen '11**. He presented a talk at a professional meeting last summer and published 11 articles on cichlid fishes. He continued his work as associate editor/technical editor for the *Journal of the American Cichlid Association*, as chair of the Guy D. Jordan Endowment Fund of the American Cichlid Association, and as a member of the Editorial Board of *Tropical Fish Hobbyist* magazine. He became the editor of *Cichlid News* this summer. He continued to serve as a member of the Environmental Studies Committee, stepped down as

head of biology in August 2009 after nine years, appointed by the Provost to be the director of research services serving in that capacity for the 2009-10 academic year.

SHYAMAL MAJUMDAR, Kreider Professor Emeritus, supervised two research students and published several student co-authored articles. As chairman of the International Scientific Committee, Majumdar attended and presented a paper at the Second International Conference on Ecotoxicology and Environmental Sciences held at Indian Institute of Chemical Engineers (Jadavpur University) in Calcutta, India. He is a member of the International Advisory Board of the 6th Asia-Pacific Organization for Cell Biology Conference to be held in Manila, Philippines, in February 2011, and continues as editor of *Journal of the Pennsylvania Academy of Science*. He co-edited a book titled *Avian Ecology and Conservation: A Pennsylvania Focus With National Implications*, and is co-editing a book titled *Pandemic Influenza Viruses: Science, Surveillance, and Public Health*.

PAULETTE MCKENNA continues to run the department in her inimitable way. In addition to her efforts in our department, McKenna has never been forgotten by those she has served prior to arriving in biology and never hesitates to assist others across campus whenever asked. She began her career here at the College with a 19-year stint at Bailey Health Center. All of her talents and contributions were recognized this year when she was presented with the Lafayette College Distinguished Service Award.

MANUEL OSPINA-GIRALDO, assistant professor, taught Mycology with two laboratory sections, and Molecular Basis of Disease. In spring, Ospina-Giraldo was on Junior Faculty Research Leave. He supervised five research students in the fall, two in the spring, and four over the summer. Part of the student research conducted this year was presented at the Oomycete Molecular Genetics Network meeting in Toulouse, France, where Ospina-Giraldo also chaired one of the oral presentation sessions. He served on the Student Life Faculty Committee and advised 16 students. Funding from the Oomycete Molecular Genetics Network supported travel for his research students to attend the Oomycete Bioinformatics Resources Training Workshop at Virginia Tech. In collaboration with researchers from Penn State University and Franklin and Marshall College, Ospina-Giraldo was awarded part of a $999,900 grant "Education in genomics-based microbial forensics" from the USDA's Microbial Functional Genomics Program.

ELAINE REYNOLDS, associate professor, taught Neurobiology; Art, Neuroscience, and Consciousness with art professor Ed Kerns, and Advanced Neuroscience. During the academic year, Reynolds supervised two honors thesis students in neuroscience and 10 other student research projects. She was an academic adviser for over 40 students, and continues working on projects using drosophila and neurocomputation. Reynolds co-authored a presentation with her students and computer science professor **Chun Wai Liew** at the Society of Neuroscience meeting in Chicago, and another neurocomputation project with computer science professor **Jeff Pfaffman** at the Third IEEE International Conference of Self-Adaptive and Self-Organizing Systems in Los Alamitos, Calif. Reynolds collaborated with six students on four presentations at the Lehigh Valley Society for Neuroscience Conference. She served on the Neuroscience Advisory and Curriculum and Educational Policy committees, reviewed grants for the SOMAS program, is on the board for the organization Faculty for Undergraduate Neuroscience (FUN), and is the vice president and founding member of the Lehigh Valley Society for Neuroscience.

MEGAN ROTHENBERGER, assistant professor, taught Conservation Biology and two sections of the Values and Science/Technology course "Agriculture, Ethics, and the Environment." She served on an honors thesis committee in civil and environmental engineering and oversaw the independent research of three students in biology. In fall 2009, two manuscripts were published on her graduate research on the long-term effects of changing land use practices on surface water quality and phytoplankton assemblages. She served on the Sustainability Committee and hosted JoAnn Burkholder from North Carolina State University. Burkholder gave two seminars titled "Industrialized Swine Agriculture," and "Pfiesteria, an Environmental Health Issue—The Role of Science, Scientists' conduct, a Federal Agency, and the Press."

NANCY WATERS, associate professor, offered Ecology, Botany, and Biodiversity, the Values and Science/Technology course "Pharmaceutical Science and Ethics," and Environmental Biology. She mentored four independent research students in the fall and two in spring, served on two honors thesis committees in biology and economics, and was academic adviser for 34 students. Results of her work with students were presented at the National Conference on Undergraduate Research in Montana. She supervised Nalven and Mellon Fellowship recipients and submitted two proposals for extramural funding, one as PI on an interdepartmental NSF MRI proposal, and another to the McCutchen Foundation that was successfully funded. Her book chapter on avian contaminants appeared in 2010, and she evaluated manuscripts for a pair of peer-reviewed journals. Waters was elected to chair the Faculty Committee on Athletics, continued to serve as chair on the Provost's advisory committee on graduate studies and fellowships advising, and was elected to the Faculty Enrollment Planning Committee. ■

ALUMNI UPDATES *we'd love to hear from you!*

Thanks to those who keep us updated. We would love to know how you are, what you are up to, and ways you have used your biology knowledge in your careers or everyday life.

PETER F. VITIELLO '02 accepted a position as assistant scientist directing a laboratory within the Children's Health Research Center at Sanford Health in Sioux Falls, S.D. Vitiello's lab is focused on understanding the role of redox signaling in lung development and during oxidative injury such as bronchopulmonary dysplasia.

MARA G. SHAINHEIT '03 successfully defended her dissertation "Mechanisms of Pathogenic Th17 Cell Induction in Schistosoma mansoni Infection" to earn her Ph.D. in immunology from Tufts University.

JASON BRENNER '07 is attending George Washington University Medical School.

NATE PARKER '08 spent two years in Teach for America in south Texas teaching eighth-grade science at De Zavala Middle School in La Joya, where he also served as department head for a year. Parker is headed to the University of Texas on a full scholarship to pursue a master of public health in epidemiology.

JUSTIN BLAUM '08 is attending Lake Erie College of Osteopathic Medicine.

CORRINE CASEY '08 is attending New England College of Optometry.

ANDREW LANZONE '08 is attending Philadelphia College of Osteopathic Medicine.

MEGAN CHAWNER '08 is working as a conservation intern at USDA-ARS, in Fort Lauderdale, Fla.

JESSICA MCWALTERS '09 is working as a laboratory technician in the department of genetics and development at Columbia University and is a student at Mailman School of Public Health, Department of Health Policy and Management in New York, N.Y.

JOHN GRIFFITH '09 is in his second year of medical school at Drexel University College of Medicine in Philadelphia, Pa.

JULIE MCNEISH '09 is attending University of Connecticut Dental School.

MEGAN CARTER '09 is attending Columbia University in the physical therapy program.

JUSTIN LUCAS '10 is working as a primary scientist for Pfizer Pharmaceuticals. ■

JENNIFER ROMANO '10 PUBLISHES RESEARCH

Biology graduate **Jennifer Romano '10** has co-authored a paper published in the international academic journal *Visual Neuroscience*.

The paper is the result of research Romano conducted as an EXCEL Scholar under the guidance of **James Dearworth**, assistant professor of biology. Other co-authors of the paper are former EXCEL Scholars **Justin Blaum '08**, **Jason Brenner '07**, **Deborah Fink' 06**, and **Tory Littlefield '06**.

Romano and Dearworth studied the ciliary nerve on the eye of red-eared slider turtles. "I stimulated the nerve using a glass-tip electrode in order to find out how different currents and frequencies change the pupil's response to light," says Romano.

Their mission was to discover the optimal current and frequency of the signals in a live turtle. Through their research they have found that the optimal frequency is 100 Hz and 100 micro amps for current. "Anything much higher either causes less of a response or the response remains the same," states Romano.

Romano's main roles were helping with the last few experiments and revising the paper. "It was similar to the research I was doing on my own, so many of my turtles and experiments were used directly in the paper and averaged with the previous experiments done by other Lafayette students," she says.

She attributes many of the skills she has learned to her close interaction with Dearworth in the lab. "This work has taught me independence and discipline. I have never worked on a long project before, and it takes a great deal of motivation to be able to keep up with the work. I think the lessons I learned from this research in general will help me, especially with the work I will have in veterinary school," says Romano.

LIPITOR CO-CREATOR NEWTON '72 DISCUSSES HIS CAREER WITH STUDENTS

Roger Newton '72, the co-creator of the cholesterol-reducing drug Lipitor, visited campus in September to discuss his career in the pharmaceutical industry and the benefits of a Lafayette education.

Newton, a biology graduate, was with Warner Lambert/Parke-Davis (now Pfizer) from 1981-1998. As chairman of the Atherosclerosis Drug Discovery Team, he co-discovered atorvastatin (Lipitor), which is now the most prescribed cholesterol-reducing drug in the world. With almost 30 years in the industry, he has served as senior vice president of Pfizer Global Research and Development and is currently founder, president, and CEO of Esperion Therapeutics in Plymouth, Mich.

Newton has co-authored nearly 100 peer-reviewed professional articles and chapters, and is an adjunct associate professor in pharmacology at University of Michigan Medical School. He received a Ph.D. in nutrition from University of California—Davis, and a master of science in nutritional biochemistry from University of Connecticut.

He is the recipient of Lafayette's George Washington Kidd, Class of 1836 Award, given for career distinction. Newton also was named Entrepreneur of the Year by New Enterprise Forum (Ann Arbor, Mich.), Ernst & Young Entrepreneur of the Year (Eastern Region), Executive of the Year by *Ann Arbor Business Review*, and Michigan Venture Capital Entrepreneur of the Year. ■

GOING GREEN?

Would you like to go green? Let us know and we'll add you to the list of alumni who will receive electronic copies of the newsletters instead of paper copies. ■

FREEBORNE-BRINTON '83 PROMOTES PREVENTATIVE HEALTH CARE WITH FIRST LADY OBAMA

When First Lady Michelle Obama announced new preventive care provisions made possible through the Affordable Health Care Act at a press conference held July 14 at George Washington University, **Nancy Freeborne-Brinton '83** also spoke.

Mrs. Obama, joined by Jill Biden and Health and Human Services Secretary Kathleen Sebelius, stressed that preventive care is key to a healthier America in her presentation to GW's medical faculty associates.

In brief remarks, Freeborne-Brinton drew upon her 25 years as a physician assistant at George Washington. She stressed the importance of preventive care and the hurdles, especially financial, that patients face in getting it. "Often their choice is preventive care or their groceries or a Metro card," she was quoted in a George Washington University press release.

Freeborne-Brinton, who holds a doctorate in public health, is an assistant professor in the Department of Global and Community Health, George Mason University, Fairfax, Va. She also has had a long affiliation with George Washington University in various capacities and currently works one day a week at the student health clinic.

"I am good friends with Nancy-Ann DeParle, the head of the White House Office of Health Reform," says Freeborne-Brinton. "When she learned on Monday that she needed a clinical person to be at the press conference, she called on me."

William Atkins/GWU

Michelle Obama (center) and Nancy Freeborne-Brinton '83 (right of podium) at July 14 health care press conference.

Freeborne-Brinton had the opportunity to speak briefly to Mrs. Obama and Secretary Sebelius. She and Biden both teach undergraduate students. "Dr. Biden teaches at a community college down the road from my university," says Freeborne-Brinton. "We spoke about how to mentor undergraduates."

A biology graduate, Freeborne-Brinton is looking forward to the upcoming academic year. Her son, **Sam Brinton '14**, is a Marquis Scholar and plans to study civil engineering and run on the cross-country and track teams.

Sebelius and Obama outlined new preventive care provisions made possible through the health care act and highlighted a $15 billion prevention and public health fund stipulated by the new law. ■

INTERDISCIPLINARY COURSE

(Continued from page 3)

areas," says **Alex Crespo '10**, a biology graduate. "It was especially interesting to see how artists are able to manipulate the brain into feeling certain emotions with skillful brushstrokes or well-placed sketches. I think the most significant learning occurs when people from different educational backgrounds can meet and discuss the viewpoints inherent in their own studies."

Each class consisted of lectures, discussion, and an active component, which included laboratory or studio work. Students went on a field trip to the Michener Museum in Doylestown. The course also included several guest lecturers. Artist Elizabeth Chapman, who collaborated with Kerns on the art exhibit *Word, Mind, City*, helped develop this course and was involved in teaching six classes. Students also heard seminars by Oscar, Emmy, and Grammy award-winning documentary director Alex Gibney, and Stacey Marcella, a creator of computer avatars.

As a final project for the course, the students worked in groups to create models of scientific ideas using visual means. The interdisciplinary nature of the material resulted in some interesting projects: panels that reflect musical styles in different ways by using EEG brain waves and expressive painting; a similar project using fMRI and expressive painting; a survey of student attitudes on science and art where the data was represented visually on a male/female figure; a computational project visualizing sound; and models of the developing brain in clay, painting, and even cake. ■

STUDENTS PRESENT RESEARCH AT ANNUAL MEETING OF THE PAS

Six biology majors and one neuroscience major presented research papers with their faculty advisers at the 86th annual meeting of the Pennsylvania Academy of Science held last semester.

Christopher Cosgrove '10 presented his work with **Laurie Caslake**, associate professor and head of biology, exploring the responses of desert-based microorganisms when they are removed from their natural environment and dehydrated.

Adetutu Egunsola '11 (New York, N.Y.) has researched the role certain genes play in the reduction of tumor growth rates with **Robert Kurt**, associate professor of biology.

Melissa Haber '12 (Piscataway, N.J.) and Caslake presented their paper, "The Effect of Increasing Salt Concentrations on the Growth Rate of Sporosarcina pasteurii [bacteria]."

Nafis Hasan '11 (Dhaka, Bangladesh) and **Ioana Marin '11** (Galati, Romania), a neuroscience major, worked with **Shyamal K. Majumdar**, Kreider Professor Emeritus of Biology, on research of leading anti-breast cancer drug Tamoxifen.

Karen LeSage '10 presented her work with **Bernard Fried**, Kreider Professor Emeritus of Biology, on parasitic flatworms.

Megan Schlitt '11 (Haddonfield, N.J.) worked with **James Dearworth**, assistant professor of biology, to research the effects of muscle relaxers on pupil constriction in the red-eared slider turtle. ■

BIOLOGY STUDENT AWARDS AND SCHOLARS

THE WILLIS ROBERTS HUNT PRIZE

Christopher Cosgrove '10
Katelyn Scoular '10

DR. LORRAINE MINEO TEACHING ASSISTANT AWARD

Michael DiGirolamo '10
Katelyn Scoular '10

NALVEN SUMMER 2010 RESEARCH FELLOWSHIPS

Jeffrey Hollander'10
Coleen Kelley '11

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Easton, PA

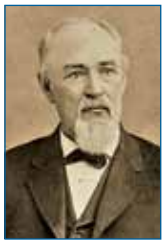
BIOLOGY AT LAFAYETTE: 1834-68

1834 The natural sciences are not sharply differentiated. Botany and mineralogy, originally taught by Samuel D. Gross, M.D., are taught by his replacement, Washington McCartney, professor of mathematics, natural philosophy, and astronomy. McCartney teaches courses in anatomy and physiology to seniors planning to study medicine.

1845 The Linné Lyceum group is dedicated to "the promotion of the natural sciences," and is one of the earliest extracurricular study groups at Lafayette. Members take turns lecturing on topics such as cold-blooded and warm-blooded animals, mineralogy, geology, and botany.

1851 Natural history appears in the College catalog when Reverend John Leaman, M.D., is named professor. After 14 years, his title changes to professor of anatomy and physiology. He continues teaching until 1886.

1864 The first of two large donations from Ario Pardee, a businessman who knew little about Lafayette, spurs the College forward. *The Philadelphia Ledger* wrote, "Lafayette College, which is not yet a full generation old, is now becoming a most important and flourishing college." Science and engineering are introduced, as Pardee becomes the push behind the establishment of the scientific and engineering department, housed in a building bearing his name. The second donation for the endowment of a scientific course becomes known as the Pardee Scientific Department, and leads to the hiring of new faculty members, including Thomas C. Porter.



1866 Porter, a graduate in the class of 1840, and a well-known botanist who was part of several botanical expeditions, is appointed as natural history professor. His extensive herbarium brings the College great prestige. Porter becomes a professor of botany, zoology, and geology. In the beginning, he also gives a lecture each year on science and religion as they are still closely related in the academic arena.

1868 The Natural History Society is formed under the direction of Professor Porter. Members explore a 25-mile radius around Easton, collecting specimens of plants, insects, rocks, and minerals, and accumulate a presentable reference library in Pardee Hall. Porter's own collection of Pennsylvania flora becomes the most complete record of plants of the state. As a tribute to Porter, at least 15 species were named after him. Altogether he adds 22 new species to the North American flora.