Legere to SURF Through Summer

JOCELYN LEGERE, a junior chemistry major concentrating on nanotechnology, will conduct group research on catalysts and their effectiveness in converting carbon dioxide into useful materials as part of the Summer Undergraduate Research Fellowship (SURF) Program at Yale Graduate School of Arts and Sciences from June 2 to July 28.

Legere, of York, was selected to work in Nilay Hazari's group during the eight-week fellowship. Much like the research she conducted in summer 2013 with Eric Hawrelak, associate professor of chemistry at BU and Legere's mentor and adviser, Hazari's research will work with the same kind of materials in inorganic chemistry.

Hazari is an assistant professor of chemistry at Yale University.

Currently involved in a capstone experience at Penn State, Legere is receiving full training for processes and tools in nanofabrication technology manufacturing. Her program through BU gives her hands-on training with characterization and manufacturing tools that would be used in a nanofabrication lab. Although her work at Penn State is not directly related to the research she will be working on at Yale, Legere “would like to connect these two experiences in the future.”

Legere intends to continue her work nanotechnology to develop ways to “decrease the harmful effects everyday products have on the environment.” Using her experience and training, she hopes to make her mark in the scientific world by combining green chemistry and nanotechnology to produce advancements and improvements on the environmental impact today’s society creates.

During the SURF Program this summer, Legere and other undergraduates will learn what to expect in graduate school, such as the requirements of doctoral-level training and working relationships with faculty members. The program will focus on research and methods of professional research.

By: Chanel Carrasquilla ’14

BU introduces Accelerated Preparation Program

BLOOMSBURG UNIVERSITY now offers a fast-track program for chemistry majors pursuing a Doctor of Osteopathy degree through a partnership with Philadelphia College of Osteopathic Medicine (PCOM). The Accelerated Bloomsburg-PCOM Physician Preparation Program is a combined Bachelor of Arts in Chemistry-Doctor of Osteopathy dual degree program that can be completed in three years at Bloomsburg University plus four years at PCOM instead of the traditional four years at BU plus four years at PCOM.

To qualify for the accelerated program, students must complete four years of high school science and attain a minimum SAT score of 1150, minimum high school GPA of 3.4 on a 4.0 scale and a class rank in the top 25 percent of high school graduating class. At BU, students must earn a minimum GPA of 3.2 in science and an overall GPA of 3.2, take the Medical College Admission Test (MCAT) no later than April of their junior year and score at least an 8 in each section of the test to be considered for admission. The accelerated program guarantees five seats for students meeting the requirements.
**EGGS**

**Making the Familiar Unfamiliar**

CRAIG DALTON, assistant professor of environmental, geographical and geological sciences, wants students in his Applied Cartography classes to think about familiar aspects of campus, such as the shuttle bus system, in unfamiliar ways.

As a lab assignment, Dalton’s students created topological maps of Bloomsburg’s campus and downtown bus routes, thinking creatively about what could be more efficient ways to represent the campus shuttle system.

“We get used to these ideas of BU,” says Dalton, explaining that the idea behind the assignment is to stimulate creativity and hopefully produce new and better ways of seeing and understanding other familiar places beyond campus. Students used graphic design software to draw maps that were unfamiliar and unique.

Dalton asked students to use maps of well-known transportation systems, such as the Washington, D.C., Metro and the London Tube, for inspiration. Like these maps, the BU bus maps that students designed do not necessarily conform to directions like north and south or coordinates like latitude and longitude, nor are they to scale. Rather, they are organized by bus stop order and with distinct colors to make them easy to read.

While a schedule and list of stops for the shuttle bus system is available on BU’s website, there is no map. “I would propose having students develop a map for the site,” says Dalton, adding the project could not only be helpful for site visitors, but also a great experience and résumé builder for the students involved.

By: Nick Cellucci ‘16

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**Research**

THREE STUDENTS MENTORED by Christopher Hallen, professor of chemistry and biochemistry, and Cynthia Venn, professor of environmental, geographical and geological sciences, presented their summer research at the Susquehanna River Symposium at Bucknell University.

- Amanda Pritzloff, chemistry major, “Annual Snapshot #5: Susquehanna River Water Chemistry at Danville, Watsontown, and Shady Nook.”
- Franklin Rodemer, double major in chemistry and EGGS, “Summer Study of Three Acidic Mine Drainages Utilizing Passive Limestone Treatment Systems in Schuylkill County PA.”
- Lynnette Eichenlaub, EGGS major, “Water Quality Study at Mike’s Lake, a Catch and Release Pond in Wyalusing (Bradford County) PA.”

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**Physics**

**Higgins Published in Health Physics**

KYLE J. HIGGINS ’13, a graduate of the health physics program, recently published a paper, “An Improved Method for Calibrating the Gantry Angles of Linear Accelerators,” in Operational Radiation Safety Journal, a supplement to Health Physics Journal. This paper is the result of the mutual collaboration between Naz Afarin Fallahian and David Simpson, both associate professors of physics and engineer technology, and Dr. Andrew O. Jones and Jared Treas from the oncology department of Geisinger Medical Health Center, Danville.

Health Physics is the primary journal for the health physics profession and the main publication of the Health Physics Society, which is a professional organization whose mission is excellence in the science and practice of radiation protection and safety. Higgins has been admitted to Duke University to pursue his advanced degree in medical physics.
BLOOMSBURG UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY NEWSLETTER
MARCH 2014

Nursing

Doctor of Nursing Practice

BLOOMSBURG UNIVERSITY’S second doctoral program – the Doctor of Nursing Practice (DNP) – was approved in January by the Pennsylvania State System of Higher Education Board of Governors. The new degree builds on the Master of Science in Nursing to help meet the shortage of health care professionals, especially in the north central and northeastern regions of the state. Twelve students are expected in the first cohort of the 33-credit, online program.

The program will help address the decline in the availability of physicians, especially in primary care specialties, and the need for improved quality of care and patient safety. It will focus on leadership, advocacy, research and requirements under the new health care system, according to Michelle Ficca, chair of nursing.

In addition to the Bachelor of Science in Nursing, BU offers nursing master’s degrees in adult health clinical nurse specialist, adult/gerontology, family nurse practitioner and, in partnership with Geisinger Health System, nurse anesthesia. The DNP will be required by 2025 in some specialties, such as nurse anesthesia. Geisinger employs more than half of BU’s advanced practice nursing graduates, Ficca says.

BU’s new program is one of three in PASSHE – others are offered by West Chester and Edinboro/Clarion. About a dozen private institutions statewide also offer the DNP.


McGraw Researches Nursing Care for Multiples

SENIOR NURSING STUDENT Shelbi McGraw of Easton conducted research at Geisinger Medical Care Center, Danville, on the differences in nursing care for infant twins, triplets, quadruplets and other multiples compared to single infants. Assisting with her research were mentor and certified nurse midwife Elisabeth Culver and several nurses from the Neonatal Intensive Care Unit (NICU).

McGraw’s findings were presented as a research poster, “Differences in Nursing Care for Multiples Compared to Single Births,” at the National Collegiate Honors Council in New Orleans. A major finding demonstrated infants, nurses and family members benefit from having all siblings in one central geographic location in the neonatal intensive care unit – co-bedding practices that simulate how multiples sleep near each other in the womb. Nurses involved in the study also suggested including parents in care as early as possible and staggering feeding schedules to help decrease the burden for parents upon discharge from the hospital.

McGraw hopes to pursue a career in the NICU using her research findings as helpful everyday information for her own nursing practices and the parents of multiples.

Biology

New Program for Undergrads

A MAJOR IN ENVIRONMENTAL BIOLOGY is now an available for undergraduates. The Bachelor of Science in Environmental Biology option allows students to choose 21 credits of electives from courses in biology, marine sciences, geography and geosciences in order to customize the program to suit their interests. Environmental biology focuses on the interactions between organisms and their environment and how humans alter these interactions.

New Course

ECOSYSTEM MANAGEMENT is a new biology elective for students on track for a Bachelor of Science in biology or environmental biology and biology graduate students. Goals of the course are to cultivate an understanding of the processes underlying functioning ecosystems, how humans have altered these processes and how this knowledge can be applied for more effective management and restoration of ecosystems at both local and landscape scales.
Awards and Research

Scholarships and Awards
The following biology and health science students received awards and scholarships for their outstanding research and dedication to academics:

- Justin VanDerMolen: James E. Cole Medical Imaging Scholarship
- Adam Kulp: Biological and Allied Health Science Scholarship
- Myrle Newcomer: James Parsons Medical Lab Science Scholarship
- Renee Risaliti: Margaret Till Physiology Award
- Kelsey Matthews: Outstanding Biology Student Award
- Brittany Carper: Outstanding Health Science Student Award

Research
Three Biological and Allied Health Sciences students were recognized for their research accomplishments at state conferences in 2013.

- Renee Risaliti: Poster of research investigating the integrated responses to heat stress in black worms. PASSHE STEM Conference for Undergraduate Research; third place.

Kapp Publishes Fieldbook
Karl Kapp, professor of instructional technology, co-authored the book The Gamification of Learning and Instruction Fieldbook: Theory into Practice with alumnus Lucas Blair, featuring a chapter from fellow IT professor Helmut Doll and graphic artwork by alumna Kristen Bittner. The book was released on Nov. 18, 2013.

Digital forensics major Andy Rector placed in the top 10 percent in the Defense Cyber Crime Center (DC3) Digital Forensics Challenge, a 10-month international competition sponsored by the U.S. Department of Defense.

The DC3 was conducted online with challenges ranging from novice to developer. Rector placed 21st out of 317 teams alongside other students, civilians and corporate competitors and was fourth among undergraduates while individually representing Bloomsburg University as his team.

Teams were asked to solve 26 scenario-based exercises through investigative forensics tools, techniques and methodologies.

For news about research, presentations and publications, see bloomu.edu/research_scholars.