When Robert Aronstam became the dean of BU’s College of Science and Technology in July 2015 he brought something very special with him — a protein cloning service that aids researchers all over the world.

Aronstam is a molecular neuroscientist with a career that has included work at the Medical College of Georgia, the Guthrie Research Institute and the Missouri College of Science and Technology. The core of his research is focused on the human brain and synthetic biology, engineering brain proteins that don’t exist in nature.

“The brain has 89 billion neurons that squirt chemicals (neurotransmitters) onto each other,” Aronstam explains. “When a neuron squirts out one chemical, it interacts with a receptor on the next cell. Binding of the chemical to the receptor, a special type of protein, on the receptive cell turns that cell on or off. Brain function emerges from the total activity of billions and billions of these receptor switches.”

Signal transduction refers to the process by which different cells respond to chemical signals from one another. “That’s what the brain does,” says Aronstam.

He has worked closely with colleagues and former undergraduate and graduate students throughout his career to clone and sequence virtually every receptor and transducer protein used in the brain. That collection is now maintained and being expanded upon by BU students and faculty, including Dr. Michael Borland and Dr. Ellen Kehres, assistant professors in the department of chemistry and biochemistry.

The clones are propagated in bacteria and then frozen for storage. Cloned human proteins are useful for work in a variety of fields, including medical and pharmaceutical research.

“If you’re a scientist, your test tube is now a cell,” Aronstam says. “You can take clones for the different proteins you are interested in, stick them into the cell, and then have the cell make them. We save (researchers) tremendous amounts of time. You could clone any of these proteins yourself, but it would take you weeks or months. If you visit our web site, you could receive the clone the next day, and you would know exactly what you are getting.”

“It’s a great training tool. We have BU students who want to learn how to clone and modify cells.” Aronstam explains. “We can put them on some immediate projects, which may result in products that we put into our catalog.”

Continued on next page.
Kristen Lewis, assistant professor of chemistry, was awarded a grant of supercomputer time and storage from the Extreme Science and Engineering Discovery Environment (XSEDE) program. XSEDE is a single virtual system that allows scientists access to supercomputers and high-end visualization and data analysis resources across the county.

XSEDE is a five-year, $121-million project supported by the National Science Foundation. Lewis was approved for a one-year startup allocation of 50,000 service units on Comet, a supercomputing system housed at the San Diego Supercomputer Center (SDSC), and 500 GB of medium-term disk storage on Data Oasis, a data storage system also housed at SDSC.

Lewis, a computational chemist, studies the properties of chemicals through computer modeling. She will investigate the effects of hydroxyl group distribution on the stability, structure and antioxidant activity of fullerenols – molecules related to “buckminsterfullerenes,” also known as “Buckyballs” — an important current research area in materials chemistry.

Chemistry prof. awarded discovery grant

DEPARTMENT NAME CHANGE
The Department of Mathematics, Computer Science, and Statistics is now known as the Department of Mathematical and Digital Sciences. The name change was requested to better represent the increasingly diverse and multifaceted programs within the department.

“In particular, we felt our original name did not appropriately reflect the inclusion of our successful Digital Forensics program,” says Curt Jones, chair and professor of mathematics and computer science.

BU’s Digital Forensics program began in 2008 and currently has 175 students studying to obtain an undergraduate degree in the program.

Jones says, “We did notice that we could abbreviate our department name as MADS or MAD Science and thought it would give us an interesting way to start conversations with prospective students and other interested stakeholders as well as be memorable as a department identifier.”

STEM TRANSFER INITIATIVE
Toni Bell, professor of chemistry and biochemistry, recently spoke with students at Lehigh-Carbon Community College about transferring to BU as part of the science, technology, engineering and mathematics (STEM) Transfer Initiative. The goal is to increase the number of community college graduates holding associate’s degrees who choose to complete Bachelor of Science degrees in STEM fields at BU. The project aims to develop personal relationships with community college faculty through collaborative interactions and demonstrate BU’s exceptional institution, faculty, and programs. The STEM Transfer Initiative is beginning with HACC: Central Pennsylvania’s Community College.

PHYSICS/ET STUDENTS INDUCTED
The Physics and Engineering Technology department recently inducted members into the Sigma Pi Sigma Honors Society, the national physics honors society. The inductees are Michael Dreyer, Nate Henry, Lauren Kerstetter, Racquel Kreischer, Derek Stahl, Stephan Vajdic and Rachel Yenney.

Researchers
Continued from previous page.

Since his arrival in July, BU has sold nearly $80,000 worth of clones. “We’re closing in on $3 million in sales since 2004. Once we have the clones, it’s mainly profits, and it all goes back into the university,” Aronstam says. The money is used to maintain the collection, train students and support student and faculty research. About 60 percent of sales are to researchers overseas.

“We’ve sold to scientists at hundreds of institutions on every continent (except Antarctica),” says Aronstam.

Visit the BU cDNA Resource Center at www.cdna.org.
December grad has perfect ending

Collin Shoop, a mathematics and computer science major who graduated in December 2015, capped his time at Bloomsburg with a perfect score of 200 on the ETS Major Field Test for Mathematics. He is the first BU student to do so in math, according to the Department of Mathematics and Digital Sciences.

“I was surprised, definitely not expecting a perfect score,” says Shoop, adding the test was part of his math capstone course, Math Modeling. “Looking back, taking Theory of Computation and Abstract Algebra really helped. The questions can be very complicated and convoluted.”

Prior to the fall 2015 semester, Shoop scored a perfect 170 in the quantitative section of the GRE test, which placed him in the top 98 percentile. Last spring, Shoop was among a group of students who created an interactive website application from scratch to display real-time readings of electric power usage across lower campus. He plans to attend graduate school at Penn State University to study computer science.

Intergenerational literacy exercise

Children from the Danville Head Start program and adults from the Central Pennsylvania Aphasia Center were brought together for Intergenerational Day, an hour-long event to target early literacy and articulation skills, word retrieval and compensatory and cueing strategies. The communication partners worked together on a reading, craft and map activities relating to the Dr. Seuss book, Oh, the Places You’ll Go. This event was organized by members of the Graduate Association of Speech Pathologists and funded by a grant from the Campus-Wide Committee on Human Relations.
Physics land cover article

Nathaniel Greene, professor of physics and engineering technology, co-wrote an article, “Finding the Effective Mass and Spring Constant of a Force Probe from Simple Harmonic Motion,” which was selected for the cover of *The Physics Teacher*, v. 54, 138 (March 2016). Coauthors are Tom Gill and Stephen Eyerly. Tom Gill is a 25-year veteran physics and astronomy teacher at Central Columbia High School. Stephen Eyerly, a senior at Central Columbia High School, is also a Bloomsburg University STEM student.

Keeping track of frog and toad

Dr. Amber Pitt was a co-author, along with colleagues from the University of Maine, Clemson University, and U.S. Geological Survey, of a paper entitled, “Evaluation of a waistband for attaching external radio transmitters to anurans” that was published in the peer-reviewed journal Wildlife Society Bulletin. The paper describes a new and improved radio-transmitter attachment method that can be used for tagging anurans (frogs and toads). This method allows for improved radio-telemetry studies that will allow researchers to track anurans and gain critical data regarding their natural history and ecology. Anurans have undergone dramatic population declines in recent years and are highly imperiled throughout the world so ecological data that can be gained through radio-telemetry studies can lead to enhanced conservation programs. The article can be downloaded from: www.researchgate.net/profile/Amber_Pitt/publications

Audiology and speech pathology

FIVE GRADUATE STUDENTS AND THREE FACULTY MEMBERS from the Department of Audiology and Speech Pathology attended the annual convention of the American Speech, Language, Hearing Association in Denver, Colo.

Attendees included: Nikhil Bhut, Katie Chominski, Samantha Kirby, Jennifer Kundratic and Marisa Caulkins, speech pathology graduate students NS Shelley Scarpino, assistant professor of speech pathology.

Kirby, co-presented a poster with Scarpino, *Analysis of English Fricative Production in Mexican Spanish-English Speaking Three-, Four-, and Five-Year Olds.*

Scarpino co-presented a two-hour seminar, *Promoting Vocabulary and Phonological Awareness: A Small Group Interactive Book Reading Intervention for Kindergarteners,* with Carol Hammer of the Teachers College at Columbia University.

Chemistry/biochemistry

ERIC HAWRELA K, associate professor of chemistry, attended the National Science Foundation-sponsored Forensic Chemistry Workshop at Williams College, Williamstown, Mass. An aim of the workshops held nationwide, which include hands-on activities, is to provide participants with perspectives and content that can be incorporated into their own teaching at the undergraduate level.

SHELBY COLEMAN, Bloomsburg, presented the results of her summer REU research, “An Investigation of Coal Dust Transport Near the Lafayette River, Norfolk, Va.” at the 2015 Annual Meeting of the Geological Society of America in Baltimore, Md.

DR. MICHAEL PUGH AND 7 STUDENTS attended and presented posters at the National ACS Meeting in Denver, Colo. from March 22-26. The students were Jocelyn Legere, Sawyer Davis, Eric Thompson, Amanda Pritzlaff, Amanda Lacerte, Teresa Grimes, and Shana Wagner.

ASHLEY WAGNER ‘15 presented a poster at the Society of Toxicology meeting in San Diego.
New collegiate sport: Soil judging

BU’s first soil judging team participated in its first competition at Malabar Farm in Wooster, Ohio, in October 2015. The A team placed eighth out of 16 with 3,016 points, and the B team placed 13th with 2,875 points. The team’s top individual was Daniel Steinhauser, a senior from Pittsburgh, who placed 16th out of 62 participants.

The competition involved figuring out how many horizons -- different layers of different types of soil -- were in each pit. The students also judged the morphology of the soil, landscape, soil classification, and site interpretation.

“This was a great experience for my major. It gets you to do good field work and pushes you to perform better because it is in a competition environment,” says Eric Franz, a senior environmental, geographical and geological sciences major from Horsham.


ENVIRONMENTAL, GEOGRAPHICAL, AND GEOLOGICAL SCIENCES

MATT MATTESINI, a senior from Riverside, gave a talk, “Vegetation Cover and Groundwater Monitoring of a Tidally Restricted Salt Marsh in Greenbackville, Virginia,” at the biennial meeting of the Coastal and Estuarine Research Federation, held Nov. 8 to 12, 2015, in Portland, Ore.


FACULTY MEMBERS JENN HANEY AND JEN WHISNER represented the Department of Environmental, Geographical, and Geological Sciences at the Columbia County Hazard Mitigation Plan Update Kick-Off Meeting in November 2015.

NINE BU STUDENTS GAVE PRESENTATIONS at the annual meeting of the Geological Society of America in Baltimore from Nov 1 to 4, 2015. (An asterisk indicates a student.

“Anoxic limestone drain - remediation of pine forest mine in St. Clair, Pennsylvania” by *Mitchell, Audra I. (1); Venn, Cynthia (1); Hallen, Christopher p.(2); and *Nap kora, Frank Z. (1).

“A sedimentological assessment of the effectiveness of the pine forest acid mine drainage treatment system, St. Clair, Schuylkill County, Pa." by *Nap kora, Frank Z. (1); Venn, Cynthia (1); Hallen, Christopher P. (2); and *Mitchell, Audra I.

“Using water levels and salinity to characterize the flow regime in a tidally restricted Mid-Atlantic salt marsh in Greenbackville, Va." by *Mattesini, Matthew M.; Whisner, Jennifer K.; and Venn, Cynthia.

“Not just fool’s gold: XRF and SEM analysis of the effects of pyrite on a bioturbated k-pg outcrop” presented by *Maza, Zach A.; Buynevich, Ilya V. (Temple University); and Venn, Cynthia.


“Anthropogenic effects on soil and water chemistry in the middle Schuylkill River watershed, Montgomery County, Pa.” presented by *Tompkins, Daniel; Venn, Cynthia; and Ricker, Matthew.

“XRF analysis of devonian to mississippian lithofacies from drill core lyco081_0341, Lycoming County, Pennsylvania” by *Rodemer, Franklin E.; *Sandritter, Morgan J.; McLaurin, Brett T.; *James, Robert N.; and *White, Joshua J.

“Devonian to mississippian lithofacies and depositional environments from drill core lyco081_0341, Lycoming County, Pennsylvania” presented by *Sandritter, Morgan J.; McLaurin, Brett T.; *James, Robert N.; *Rodemer, Franklin E.; and *White, Joshua J.
ERIC S. RAWSON, fellow of the American College of Sports Medicine and professor and chair of the exercise science department, co-edited the book, Nutrition for Elite Athletes, with Stella Volpe, chair of the nutrition sciences department at Drexel University. The text provides a comprehensive review of research on the nutritional needs of top athletes, and features chapters written by leading scientists from the U.S., Brazil, Canada, Australia and the United Kingdom. Rawson, along with BU exercise science students Cortney Steele and Charles Brightbill, co-authored a chapter, Dietary Supplements for Strength Power Athletes. The book identifies the nutritional needs of endurance, strength power, team sport, and weight class/aesthetic sport athletes.

Rawson also:
Delivered an invited lecture, The Potential Role of Creatine Supplementation in Healthy Ageing, at the 2015 Creatine in Health, Sport, and Medicine conference in Laufen, Germany. Rawson’s research on creatine has been funded by the National Institutes of Health and student research grants from the Gatorade Sports Science Institute (GSSI) and the National Strength and Conditioning Association. Proceedings from the creatine conference and a featured article by Rawson on creatine supplementation and cognitive function will be published in the journal Amino Acids.

EXERCISE SCIENCE

INSTRUCTIONAL TECHNOLOGY
NINE MASTER OF SCIENCE IN INFORMATION TECHNOLOGY STUDENTS co-presented a workshop at DevLearn2015 in Las Vegas with Karl Kapp, professor of information technology. They met with industry professionals and competed in DemoFest. Kathleen Deegan from Danville won the student portion of DemoFest. The trip was financed with Bloomsburg University Foundation crowdfunding.

Mathematical and Digital Sciences
DR. MICHAEL STEPHANS in the Mathematical and Digital Sciences Department has recently seen the publication of his poem, “Devil May Care,” in the Winter issue of THE NOTE, a national jazz journal published by East Stroudsburg University. Stephans, a nationally prominent jazz musician in his own right, has authored three books of poetry and fiction, as well as a critically lauded book about jazz called EXPERIENCING JAZZ: A LISTENER’S COMPANION. He is currently writing a listener’s guide to the music of Ornette Coleman, one of the world’s most innovative jazz musicians and composers.

Nursing
RESEARCH BY NOOREN CHIKOTAS AND HER COLLEAGUE, NICOLE DEFENBAUGH, “The Outcome of Interprofessional Education: Integrating Communication Studies into a Standardized Patient Experience for Advanced Practice Nursing Students, was published in the journal, Nurse Education in Practice. Chikotas was accepted to present a podium presentation of the paper at the Drexel University National Conference on Education and Simulation in Nursing in Clearwater, Fla., in March 2016.

Sheila Hartung presented her research paper, Nurse Managers’ Communication in Rural Settings: A Grounded Theory Study at the Qualitative Health Research conference in Toronto, Canada. The paper was the outcome of her research with nurse managers in rural settings and included her theory of how nurse managers’ successful communication creates and sustains a healthy work environment. The Qualitative Health Research conference, the 21st annual conference held by the International Institute for Qualitative Methodology at the University of Alberta, drew over 300 interdisciplinary attendees from around the world.
AUDIOLOGY AND SPEECH PATHOLOGY


P37 latency mismatch between lateral and midline potentials is influenced by transversal afference. Yue Q. J Clin Neurophysiol. 2015 Feb;32(1):30-3.


BIOLOGICAL AND ALLIED HEALTH SCIENCES


CHEMISTRY AND BIOCHEMISTRY


Accepted manuscript to journal Silicon. “Synthesis of High Refractive Index Silicone Materials Incorporating Aromatic Moieties with Adjacent Linkage Groups for Flexible Electronic Displays”. Authors are Scott C. Blackburn, Owen T. O’Sullivan, Diane Hinkens, Mark A. Tapsak.

ENVIRONMENTAL, GEOGRAPHICAL AND GEOLOGICAL SCIENCES


EXERCISE SCIENCE


BU geology professor runs summer dinosaur digs

Rediscovering organisms from 208 million years ago only reflects a portion of how Alan Gishlick, instructor of evolution, taphonomy, sedimentology and stratigraphy, spends his summers. A curator for the Yale Peabody Museum of Natural History, he organizes and runs the Summer Field program in the Petrified Forest National Park in Arizona. The program consists of a large-scale floral and faunal survey of the park, focusing on 225 to 208 million years ago. Over the span of seven years, Gishlick and his team have discovered over 300 skeletal elements of three different types of organisms, which he brought back to the museum for its collections. Students from BU are also chosen to partake in the digs each summer and receive hands-on on-the-job training.

“The whole reason we got started,” said Gishlick, “is that makes the chinele rock formation, which is about 20 million years of time in the petrified forest, have a steady climate change from wet and warm to a hotter, dryer climate. In the flora and fauna of this rock we see how it is adapting to that climate change.”