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## Useful Links
- College of Science and Technology: [www.bloomu.edu/cost](http://www.bloomu.edu/cost)
- Department website: [http://departments.bloomu.edu/biology/](http://departments.bloomu.edu/biology/)
- Biosynthesis newsletter: [http://bloomsburgbiosynthesis.blogspot.com/](http://bloomsburgbiosynthesis.blogspot.com/)
- Support Biology and Allied Health: [https://itspersonal.bloomu.edu/Biology](https://itspersonal.bloomu.edu/Biology)
Department of Biological and Allied Health Sciences

Chairperson Remarks

George P. Chamuris

It is my great pleasure to highlight the achievements of our faculty and students during 2016. Feel free to contact me at gchamuri@bloomu.edu for more details – I am always happy to discuss and promote our programs and our people.

Vision Statement
The Department of Biological and Allied Health Sciences aspires to:

• provide broad-based and contemporary curricula in biological and allied health sciences, preparing undergraduate and graduate students for related careers and advanced study. The curricula facilitate integration of scientific knowledge, concepts, skills, and practical applications; and cultivation of student capabilities in critical thinking and problem solving.

• foster a collaborative learning and research environment.

• offer all undergraduate students opportunities to incorporate an understanding of biological concepts and information into their general education in such a way as to contribute to their success in a diverse and rapidly changing world.

Degree Programs
We offer five degree programs, encompassing a total of 14 different undergraduate and one graduate program of study, as well as a Certificate in Medical Genomics and Counseling:

BS Medical Imaging
BS Biology
  Environmental Biology
  Molecular Biology
  Pre-Medical Sciences
BA Biology
  Natural History
MS Biology

BS Health Sciences
  General
  Medical Genomics and Counseling
  Medical Laboratory Science
  Pre-Accelerated 2nd Degree Nursing
  Pre-Pharmacy
  Pre-Physical Therapy
  Pre-Physician Assistant

Enrollment
The number of declared BAHS undergraduate majors increased from 577 in the Fall of 2015 to 644 in the Fall of 2016. The growth is attributed to a 22% increase in incoming freshmen and transfer students, as well as an increasing number of internal transfer students. The upward enrollment trend followed a five year period of relative stasis, surpassed only in 2009:

BAHS Undergraduate Fall Enrollments
Counts of Fall 2017 applications so far point strongly to a comparable increase for our programs next year over this year. This is exciting news and we are preparing for a larger freshman class. We are adding sections in lower-division courses, and are adding two additional full-time, tenure-track faculty to our department, bringing the roster up to 23. We also employ temporary faculty to fill in where needed.

An increase in the department operating budget is expected for next year to help offset the high cost of offering high-quality laboratory courses. We have also seen, through the tireless efforts of Dean Aronstam, changes in the donation procedure at the Bloomsburg University Foundation such that donors may now specify our department as the target of their much-appreciated donations. We are excited at the prospect of expanding our abilities to promote and support scholarship, especially among our students, as well as to support faculty and student travel.

**Program Review 2015 – 2016**

This past academic year we underwent a program review, which included preparation of a self-study document, visitation by two external reviewers, and introspection and reflection on the future of our department and its programs. Such reviews are required every five years. The review was very positive, and we discussed the reviewers’ recommendations and identified action items during a day-long retreat held in August. Associated with the program review, faculty revised and updated the syllabi for each of the 88 courses offered.

**Curriculum Revisions and New Programs**

The Department accomplished significant curriculum work in 2015 - 2016, including

- The establishment of the Pre-Pharmacy, Medical Genomics and Counseling, and Pre-Accelerated 2nd Degree nursing options within the BS Health Sciences degree
- The approval of a new seminar course for Health Sciences students
- The approval of our first on-line course, *Introduction to Nutrition*
- The approval of a new course, *Introduction to Research in Biology*, where lower-division students can acquire valuable research experience before taking on their own project
- The establishment of a Certificate program in Medical Genomics and Counseling within the Health Sciences degree program
- Significant revisions to *Integrated Physiology Laboratory*, and *Ecology.*
**Confocal Microscope**

2016 was a very exiting year for microscopy! After several to secure competitive NSF funding for a state-of-the-art confocal microscope, our Provost, Dr. Ira Blake, was able to provide the funds for this incredible instrument. Several faculty are anxious to expand their research capabilities, and we are all very exited about the upgrade to our research equipment. A ribbon-cutting ceremony is planned for the spring 2017. Two sample images are shown below.

A ribbon-cutting ceremony is planned for the spring 2017. Two sample images are shown below.

![The Zeiss LSM 800 Confocal Microscope](image)

**Aquaria in the Hartline Lobby**

We were fortunate to have a donation of two large aquaria, for the display of living aquatic organisms in the lobby of Hartline Science Center, by Dr. Judith Downing, BAHS Faculty Emerita. These really perk up the lobby experience!

![Aquaria in the Hartline Lobby](image)

**Farewell to Dr. Pitt**

In 2016 we said farewell to Dr. Amber Pitt, who joined the faculty at Trinity College during the summer. She is an assistant professor in the Environmental Science Program and Department of Biology at Trinity. The BAHS faculty and students all wish her all the best in her new position.

![Farewell to Dr. Pitt](image)
Teaching
Genetics, Cell Biology laboratories, Writing in Biology, Senior Seminar in Biology

Research Interests
The role of microtubules and related structures in meiosis and ascospore development in the fungus *Neurospora*, the genetic components of sexual phase development in this fungus, the effect of anti-mitotic and actin-myosin inhibitors on ascus development

Service Activities
My most significant activities and contributions over this past year involve my work as Co-Chair of the Pre-Professional Student Advisory Committee, an interdepartmental group of advisors who work closely with students preparing for admission into the medical, dental, veterinary, and chiropractic professions. We conducted our annual “Pre-Med March Madness” series of workshops in spring 2016 to assist our students in learning about and preparing application materials for professional school admissions. In fall 2016, we introduced our newer students to the roles of the Pre-Professional Advisory Committee in their career development and gave them advice and background on what is expected for pre-medical science students.

Focus on Students
We have continued to enjoy the success of our students. Four of our graduates begin their medical studies at Philadelphia College of Osteopathic Medicine this past fall: Sarah Hay, Julianne Heater, Erik Rahner, and Blake Shoemaker. One student, Josh Fleming, has begun his studies at West Virginia College of Osteopathic Medicine. Several of our current students have already been accepted into medical programs for fall 2017—some into multiple programs! Laura Chamberlin has been accepted into Philadelphia College of Osteopathic Medicine. Jonathan Perez has been accepted into Philadelphia College of Osteopathic Medicine and into Lake Erie College of Osteopathic Medicine. Alex Trezza will be attending Salus University for Optometry. Shaidy Moronta has been accepted into West Virginia College of Osteopathic Medicine and New York Institute of Technology College of Osteopathic Medicine. Justin VanDerMolen has been accepted (so far) into Campbell University of Osteopathic Medicine, Lake Erie College of Osteopathic Medicine, Philadelphia College of Osteopathic Medicine, and Touro College of Osteopathic Medicine.

Evidence for BU’s excellent record of accomplishment. We have achieved an overall 90% acceptance rate for the period 1997 to 2016.
Teaching
Cell Biology lecture and laboratories; Molecular Biology laboratory; Immunology; Cells, Genes & Molecules

Research Interests
My research interests lie in the regulation of the stress response in bees. Specifically, transcription factors that aid in the survival of invasive bees in conditions where honey bees would normally not survive. Students working under my supervisions have cloned, sequenced and characterized expression of three factors linked to stress response and survival, daf-16, hsf-1 and nrf-2, in Megachile rotundata, a solitary thermotolerant bee.

These transcription factors can also be studied/characterized in cancer cell lines to look at survival pathways. In 2016, I applied for a year long sabbatical to specifically study these factors in prostate cancer cell lines and patient tissue samples. I learned that I received a Spring/Fall 2018 sabbatical to study these factors in the laboratory at the University of Washington where I was a post-doctoral fellow.

Service Activities
University Wide Tenure Committee
COST Career Day- Biology/Allied Health Sciences Contact

Amplification of cDNA from heat shocked and control bees (Megachile rotundata) with primers targeting a portion of the heat shock factor 1 gene. The data show that HSF-1 mRNA levels were increased upon heat shock.
Teaching
Dendrology, Human Genetics, Evolution, Human Evolutionary Genetics

Research Interests
Bark Ecology, Environmental Education

During 2016 three main projects were considered:


- Initial work on the *Flora of Ricketts Glen* project began. Photographs and notes from the past 30 years were assembled and organized, and approximately 100 hours of new field work was carried out during 2016. A guide similar to the Hiker’s Guide named above, this will add the ferns, club-mosses and herbaceous flowering plants to the woody plant portion of the flora in progress. The first edition of this portion of the flora should be done by the end of 2020.

- Organization and compilation of nearly 30 years of research, in collaboration with BU undergraduate and graduate students as well as faculty, on various aspects of bark ecology was done largely in 2016. The plan is to prepare either a review article or a small book on the subject.

Service

- Bloomsburg University Academic Grievance Board

Some herbaceous vascular plants from the Flora of Ricketts Glen Project
Teaching
Neurophysiology for the Audiologist, BAHS Freshman Seminar, Neurophysiology, Integrated Physiology Laboratory, Anatomy and Physiology 2 laboratories, Human Biology

Research Interests
Synaptic Physiology, Molecular Regulation of Cellular Secretion

In 2016, Dr. Coleman continued his student-based research program by mentoring one Master of Science in Biology Thesis student, and mentoring two undergraduate research projects for credit. Results from these projects were presented at the 2016 Susquehanna Valley Undergraduate Research Symposium. He was also the academic mentor for seven student internships.

Presentations

In the summer of 2016, Dr. Coleman began work as a Student Success Collaborative (SSC) Advising Fellow, providing academic advisement to undeclared students wishing to pursue majors in Biology and Allied Health Sciences.

Kirk Jeffreys, MS in Biology student, is utilizing the fluorescent dye synaptogreen to investigate vesicle pool dynamics in the nervous system of the common earthworm.
Clay E. Corbin
Professor

Ph.D. Ohio University
Biology

Teaching
Comparative Vertebrate Anatomy, Concepts in Biology 1, Senior Seminar in Biology, Field Zoology, Vertebrate Histology, Anatomy and Physiology laboratories, Biodiversity and Conservation

Research Interests
Evolutionary Ecology, Functional Anatomy

In 2016, Dr. Corbin continued his student based research program by mentoring Masters and Undergraduate students in projects ranging from Ecomorphology of Salamanders to Conservation Biology in Insects.

Publications / Presentations

George T. Davis  
Associate Professor  
Ph.D. University of Illinois at Champaign-Urbana  
Plant Molecular Biology

Teaching
Cells, Genes, and Molecules; Ecology and Evolution; Molecular Biology; Bioinformatics

Research Interests
Genetic engineering of crop species

Dr. Davis’ lab has identified and functionally confirmed an iron transporter from oats (Avena). This transporter is the basis for the development of a means of delivering growth effector molecules with specificity to a target species. Using molecular methods, we are modifying the transporter through mutagenesis to alter its structure, function, and specificity to increase the variety of molecules recognized and taken up.

In 2016, Dr. Davis continued his student based research program by mentoring one Undergraduate Independent Study Student (Jerome Betz). We have identified a region of an iron transporter protein isolated from oats (Avena) that contributes to the specificity of recognition iron and its cognate carrier and are in the process of mutagenizing this region. This may allow us to identify amino acids that are critical to the recognition and transport process. It will also allow us to expand the repertoire of transporters in furtherance of the main focus of the Davis lab, namely the use of this iron uptake strategy to develop a targeted delivery system of growth effector molecules to appropriately engineered crop species.

Awards
- Provisional patent awarded April, 2016, for invention: “A 'Trojan Horse' Targeted Delivery System for Crop Species”
- Bloomsburg University Foundation Margin of Excellence Awards  
  Project Title: Continued Development and Evaluation of a "Trojan Horse" Targeted Nutrient Delivery System for Crop Species. Fall 2016. $6700

Companion cropping experiment: Oats transformed with the AvsYS1 transporter gene and non-transformants grown under Fe$^{3+}$ limiting conditions with oats as nurse plants. The plant on the left contains the AvsYS1 gene, oats are the natural source of avenic acid.
**Teaching**

Human Genetics, Human Physiology, Anatomy & Physiology 2 Laboratories, Medical Terminology, Human Biology, Cell Biology laboratories

**Research Interests**

G Protein Signaling, Gene Variants and Human Disease

**Targeted knockdown of gng2 using splicing morpholino in zebrafish embryos.** (A) Splice junction morpholino targeted against gng2 exon-intron boundary. (B) RT-PCR of gng2 transcript at tailbud stage in WT and gng2-MO (100 μM) morpholino-injected embryos, comparing cryptic spliced transcript in the morpholino injected embryos to the cDNA and genomic PCR products. (C) Sequencing of the RT-PCR products revealed the misspliced transcript leading to a premature stop (asterisk) and causing a truncation in the protein (exon 1 in bold, exon 2 in plain, and intron in italics and underlined). (D-E) Live morphology of WT control zebrafish embryo (D) and gng2-MO knockdown embryo (E) at 1 dpf. Injection volume was about 1 nL.

**New Initiatives**

Along with Dr. Kipe-Nolt, we developed and have received full approval for a new Certificate Program in Genetic Counseling. We have also worked together to expand Genetic Counseling Internships with the Department of Genetic Counseling at Geisinger Clinic.

**Internships**

- Kira England  Genetic Counseling, Spring 2016
- Robert Lewis  Physical Therapy, Spring 2017
- John McDonnell  Genetic Counseling, Summer 2016
Karl W. Henry, Jr.
Assistant Professor

Ph.D. Medical College of Pennsylvania and Hahnemann University
Microbiology and Immunology

Teaching
Introductory Microbiology, Medical Parasitology, Medical Microbiology, Microbiology Laboratories

Research Interests
Regulation of multidrug resistance genes in Candida species and Saccharomyces cerevisiae, biodiversity of fermentation microorganisms in lambic beer.

Ghaith Ibrahim, MS Thesis candidate, is in the final stages of revising his defended thesis: 

*Role of Gcn5, a putative histone acetyltransferase, on antifungal susceptibility and multidrug resistance gene regulation in Candida glabrata.*

Deletion of the gene encoding the putative histone acetyltransferase Gcn5 results in decreased acetylation of the CDR1 promoter (A and C) which corresponds to a decrease in the expression of the gene encoding this MDR efflux pump. The loss of Gcn5 did not significantly affect the acetylation of the PDR1 promoter (B) (encoding the transcription factor that regulates CDR1 expression).

In 2016, Dr. Henry began work in a new area of research in collaboration with former Bloomsburg University students that are currently working with local and regional brewers. Initially, they seek to isolate and identify a variety of microorganisms that are responsible for the fermentation of lambic-style (sour) beers. Once isolated, the group will attempt to determine the contribution each microorganism plays in the overall flavor and alcohol content in these types of beverages.
Angela R. Hess  
Associate Professor  
PhD University of Iowa  
Anatomy and Cell Biology  
Focus: Molecular Medicine

Teaching
Anatomy and Physiology lecture and laboratories, Introduction to Nutrition, Medical Terminology, Cancer Biology. Introduction to Nutrition was revised by Dr. Hess so that it can be offered on-line, and counting toward general education credit. During Winter Session 2016, the course was offered for the first time online.

Research Interests
My lab explores the molecular mechanisms that promote melanoma development and progression to a metastatic phenotype. I focus specifically on the receptor tyrosine kinase, EphA2, whose expression is increased in highly aggressive melanomas. Studies from my lab have demonstrated that EphA2 expression plays a role in melanoma tumor cell proliferation, invasion, migration, and the plastic phenotype as evident in the ability to engage in vasculogenic mimicry.

Students currently engaged in research projects in my lab: Emily Broadbent and Torrey Brubaker (undergraduates), and Rebecca Price and Heather Schlenker (graduate students).

Funding
5/16-5/17: R&S mini grant – Adoption of a mouse model to study malignant melanoma. PI
2016: Acquisition of a Zeiss Laser Scanning Confocal Microscope to advance research and enhance academic excellence at Bloomsburg University. Co-Principal Investigator
2016: CPUB student research grant to Rebecca Price

Internship
Faculty supervisor for 24 students conducting internships in Medical Imaging at various Geisinger Medical Center locations.

Service Activities
University Wide Promotion Committee – Chairperson
Phi Kappa Phi, Chapter 202 – President
Institutional Animal Care and Use Committee
Academic Biology Learning Environment (ABLE) - Co-Director
Summer Task force on Faculty Research committee – Chairperson
Bloomsburg-Allentown Partnership Program
Middle States Standards Sub-working group member
BU Faculty representative on PASSHE FPDC
Faculty advisor – Biological and Allied Health Science Club
Geisinger School of Radiologic Technology – member of advisory committee
Science Fair Judge – Bloomsburg Area Middle School and the Bloomsburg Children’s Museum

Torrey Brubaker culturing melanoma cells.
Teaching
Human Biology; Biology of Aging; Anatomy and Physiology of the Head, Neck and Thorax; Vertebrate Zoology; Senior Seminar in Biology

Research Interests
My research expertise is in the ecological genetics and physiological ecology of animals. I study amphibians and reptiles and bees, but I also collaborate to study other taxa, providing expertise in ecological genetics or physiological ecology. I apply numerous techniques (allozyme genetics, microsatellite DNA genotyping, mtDNA sequencing, western blotting, ELISA, and skeletochronology) to study heterozygosity-fitness relationships, population genetic structure, and the abundance, distribution, and the physiological ecology of animals. Currently, my research is focused on studying island dwarfism and coastal ecology of amphibians and pollination systems.

Publication

Presentations at the Society for Integrative and Comparative Biology, Portland OR (3-7 Jan 2016)

Funding
- 2016-2020. NSF-International REU Grant: Synergistic Studies of Honey Bees in the Republic of Turkey. John F. Barthell (PI), Charles Abramson (Co-PI), Victor H. Gonzalez (Senior Personnel), John M. Hranitz (Senior Personnel). Funded ($396,640)
- 2013-2016. NSF-International REU Grant: Integrative Biological Studies of Honey Bees in the Republic of Turkey. John F. Barthell (PI), Charles Abramson (Co-PI), Harrington Wells (Senior Personnel), John M. Hranitz (Senior Personnel). Funded ($230,310).

Service Activities
- Director, Office of Research and Sponsored Programs and the Center for Undergraduate Research
- MS Thesis Advisor to Alan Belles, Jonathan Bobek, Bradley Ohlinger
Teaching
Microbiology lecture and laboratories, BAHS Freshman Seminar

Research Interests
Soil and environmental microbiology, symbiotic nitrogen fixation, composting, manure odors and anaerobic digestion

A major initiative undertaken in 2016 was the development of three new advisement tracks in the B.S. Health Sciences degree. A Pre-Pharmacy track will serve as preparation for students to transfer into four-year PharmD graduate programs. A Pre-Accelerated Nursing track will prepare health science students for admission into accelerated, also called 2nd degree, nursing programs. These vary in length from eleven to eighteen months. The third track is one in Medical Genomics and Counseling. With the recent expansion in genome sequencing of patient DNA, there is significant demand for genomic analysts (research direction) and genetic counselors (clinical direction). This track will prepare students for entry-level jobs in both these areas. Additionally it will provide the background for entrance into Masters in Genetic Counseling degree programs.

Students visit the Johns Hopkins Hospital Schools of Medical Imaging.

Several new opportunities for students to complete radiography and sonography clinical programs include: AnMed Health in Anderson SC, St. Francis Medical Ctr. in Trenton NJ, JFK Muhlenberg in Metuchen NJ, Winchester Medical in Winchester VA, and Lackawana College in Scranton PA.
Teaching
Human Sexuality, Concepts in Biology 1 laboratories, Marine Invertebrates
On sabbatical leave during Spring 2016.

Research Interests
My investigations have related to the functional aspects of invertebrate zoology. Most of these studies have focused upon physiological, behavioral, and ecological aspects of nutrition of echinoderms. Recent studies have emphasized impacts of climate change, particularly elevated sea surface temperatures and ocean acidification. This work upon novel challenges to sea animals has led to increased involvement in environmental policy and conservation efforts.

2016 was a year for travel. In January, I went to the University of Florida to present our work on religious supports for biodiversity conservation in Taiwan to the International Society for the Study of Religion, Nature and Culture. Then, it was down to Panama to investigate the thermal tolerances of Caribbean and Pacific sea urchins with the Smithsonian Tropical Research Institute. Summer was spent at the Chincoteague Bay Field Station training a new generation of marine invertebrate zoologists. I finished the year in the Indian Ocean, where I served on a panel to select the recipient of the Best Mauritian Scientist Award for the Mauritian Research Council of the Ministry of Technology, Innovation and Communication.

Presentations
- **There Are Stars in the Sea...** Ministry of Technology, Innovation and Communication. Port Luis, Mauritius, 12/12/2017
- **Religious Thought Facilitating Biodiversity Conservation.** Chincoteague Bay Field Station, Wallops Island, 8/2/2016

With co-author Chang Po Chen at the Dharma Drum Mountain International Buddhist Education Center for the inauguration of the School of Environmental Studies.

Galata Marine Laboratory at the Caribbean end of the Panama Canal.
Teaching
Introduction to Nutrition, Concepts in Biology 1 laboratories, Anatomy and Physiology laboratories

Research Interests
My research laboratory is dedicated to understanding the neuroendocrine mechanisms underlying diseases of energy dysregulation (e.g. obesity, anorexia). These mechanisms are studied from an evolutionary perspective – traits evolve if they increase reproductive success. Therefore, we examine both ingestive as well as reproductive behaviors simultaneously, using female Syrian hamsters housed in a semi-natural environment.

A graduate student, Shandna Burroughs (pictured), and two undergraduate students, Taylor Trautwein and Arjun Dalsania, found that a peptide called prokineticin-2 (PK-2) acts as a robust appetite suppressant when given to food-restricted hamsters. In these experiments, it was shown that while PK-2 suppressed ingestive behavior compared to hamsters given vehicle, it caused a dramatic increase in female sexual libido. Current experiments are assessing if PK-2 is decreasing food intake by antagonizing the orexigenic peptide ghrelin or another mechanism.

Grant
Research and scholarship grant provided by Bloomsburg University. Title: Food-restriction affects reproductive and ingestive behaviors in zebrafish (Danio rerio)

Presentations
Barry L. Nolt
Assistant Professor
Ph.D. Pennsylvania State University
Plant Pathology

Teaching
Concepts in Biology 1 laboratories, Microbiology laboratories, Virology

Research Interests
Soil-borne fungal diseases of plants, anaerobic digestion of organic wastes

In 2016, Dr. Nolt assisted in the expansion of student internship opportunities in the medical imaging department at the Geisinger Medical Center. He also coordinated the first medical imaging internship affiliation with the Penn State Hershey Medical Center. Dr. Nolt mentored 14 student internships in medical imaging during 2016.
Amber L. Pitt
Assistant Professor, Spring 2016
Currently Assistant Professor, Trinity College
Ph.D. University of Florida
Interdisciplinary Ecology

Teaching
Ecosystem Management, Population Biology, Concepts in Biology 1 laboratories, Biodiversity and Conservation

Research Interests
Dr. Pitt’s integrative, interdisciplinary, conservation-driven research focuses on elucidating patterns and causes of biodiversity loss and alteration across spatial and ecological organizational scales. She primarily examines aquatic systems and herpetofauna (i.e., reptiles and amphibians) due to the inherent sensitivity of these ecosystems and taxa to pervasive stressors (e.g., habitat degradation, climate change), and their rapid global decline.

2016 Publications


Presentations


2016 Service Activities

• Invited presentation on Vernal Pools at the Fishing Creek Watershed Association Meeting, Bloomsburg, PA

• Guest lecture, and served as Kocher Park Interpretive Poster Project Consultant for multiple sections of Dr. Shavonne Shorter’s COMMSTUD 106 Small Group Communication Course, Bloomsburg University, Bloomsburg, PA
Teaching
Concepts in Biology 1 laboratories, Ecology and Evolution, Current Topics in Biology - (Stream and River Ecology, Limnology, Freshman Seminar in Biology

Research Interests
Stream Ecosystem Ecology, Algal and Microbial Ecology, Water Pollution

Dr. Rier mentored two undergraduate research students and continues to work two Master’s Students.
Projects included:
- High resolution monitoring of phosphorus dynamics in Fishing Creek
- Effects of a simulated brine spill on stream ecosystem function (collaboration with the United States Geological Survey)
- Polyphosphate dynamics in artificial stream mesocosms (collaboration with United States Environmental Protection Agency)

Publications

Grants
- Measuring performance of best management practices installed as part of the implementing precision conservation in the Susquehanna River Watershed. National Fish and Wildlife Federation ($115,000, BU budget)
- Water quality investigations at Bloomsburg University: Summer 2016. Degenstein Foundation ($25,000)

Presentation
Teaching
Anatomy and Physiology laboratories, Molecular Biology, Pharmacology for the Health Sciences

Research Interests
My research interest is in G-protein coupled signal transduction. G-proteins initiate the cellular response to activation of cell surface receptors for numerous signals including hormones, neurotransmitters, paracrine factors, odorants, and light. G-proteins are composed of three subunits, an-subunit and a -dimer; each of these subunits is encoded by a gene family. My aim is discover the specific roles of individual G-protein -subunits in signal transduction, and how epigenetic regulation of their expression may be involved in human disease.

Mentored Student Presentations
• Bogdanowitz, A. and Schwindinger, W., Calcium Signaling in SH-SY5Y Cells and G Protein Subunit Gamma 4, COST Informal Poster Session, December 9, 2016.
• Young, J. and Schwindinger, W., Measuring Methylation of GNG11 in Human Breast Cancer, Beta Beta Beta National Biological Honor Society, Northeast District 2 Convention, Ursinus College, March 19, 2016.

Grants
• PASSHE, Faculty Professional Development Annual Grant, May 2015- Oct. 2016, $9000
• Bloomsburg University, Research and Scholarship Mini-Grant, May 2016 May 2017, $5000

Service Activities
• Institutional Review Board for Human Subjects Research
• BAHS Faculty Search and Screen Sub-committee
• COST Faculty Support Work Group
• COST Curriculum Committee

Neuroblastoma cells transfected with a plasmid expressing green fluorescent protein.
Honey bees (*Apis mellifera*) have experienced global declines, most pronounced in the USA and Europe, linked to Colony Collapse Disorder (CCD). While there is no single cause of CCD, leading suspects include pesticide use, pathogens, and nutritional stress. In particular, pesticides may cause sublethal stress in honey bees, with resulting impairments in memory, mobility, and foraging behavior that affect hive health. The intracellular chaperone heat shock protein 70 (HSP70) has been shown to be an excellent biomarker for sublethal stress in honeybees. During Research in Biology 1, biology majors Beverly Andre (top right) and Kyle Gainard (bottom right) investigated the sublethal responses of honeybees to various pesticides by measuring HSP70 levels pre and post-treatment. This laboratory research is part of a collaboration with Dr. Hranitz of Bloomsburg University and the Beekeeping and Development Center in Bursa, Turkey. Both Beverly and Kyle received research grants to support their work.

**Grants**

**Presentations** at the annual meeting of the Pennsylvania Academy of Sciences, Delaware Valley University, April 2, 2016:
- Andrew King, Rebecca Price and Cynthia Surmacz. *Geodemography of Type 2 Diabetes in Pennsylvania.*
- Katie Greene, Iane Charles, Hayley Sparks, and Cynthia Surmacz. *Is the Prevalence of Type 2 Diabetes related to Income in PA counties?*

**Campus and Community Service Activities:**
- Advisor, Tri-Beta Biology Honor Society
- Secretary, The Honor Society of Phi Kappa Phi
- Honors Program Advisory Committee
- Health Sciences Symposium Committee
- Instructor, The Great STEM Adventure Camp
- Biology Workshop, Lycoming College, Nov 2016
- Science Fair Judge, Bloomsburg Middle School, Pennsylvania Academy of Sciences
- Commencement Speaker, Geisinger School of Radiologic Technology, June 2016
- Praxis National Advisory Committee for Biology, Educational Testing Service
Jennifer J. Venditti  
Associate Professor  
Assistant Dean, College of Science & Technology as of July 1, 2016  
Director, Health Sciences Learning Community  
Ph.D. Lehigh University  
Molecular Biology

Teaching  
Human Biology, Anatomy & Physiology laboratories, Cell Biology laboratories, Intro to Health Care Practice

Research Interests  
Andrology, fertilization, sperm architecture/morphology

Research Presentation  

Funding  
“Acquisition of a Zeiss Laser Scanning Confocal Microscope to Advance Research and Enhance Academic Excellence at Bloomsburg University” $300,997.86 Co-PI: Dr. Angela Hess  
Funding Source: Provost & Senior Vice President for Academic Affairs, Bloomsburg University

New Health Sciences Internships Developed  
Patient Mobility Internship  
Geisinger Bloomsburg Hospital, Bloomsburg, PA  
Geisinger Medical Center, Danville, PA

Critical Care Patient Experience  
Geisinger Medical Center, Danville, PA

Service Activities  
- Biology Club Faculty Advisor  
- COST Recruitment Task Force Leader: Summer 2016  
- Health Sciences Symposium Committee Chair  
- Science Fair Judge, Bloomsburg Area Middle School, Bloomsburg, PA

Students in Introduction to Health Care Practice
Kevin J. Williams  
Assistant Professor  
Ph.D. Syracuse University  
Physiological Ecology

**Teaching**

**Research Interests**
Plant ecology and plant physiological ecology, with a focus on plant responses to defoliation and stress.

During 2016 Dr. Williams and student volunteer initiated a project using an infrared camera to document the changes in leaf temperature when leaves are clipped. Clipping leaves removes the stomatal control of water loss, resulting rapid evaporative cooling along the cut edge.

**Service**
Dr. Williams served on the Commonwealth of Pennsylvania University Biology (CPUB) committee that reviews student grant application and awarded in excess of $2000 grants to Biologist enrolled in PASSHE schools in 2016.
Marianna D. Wood
Assistant Professor
Ph.D. University of Kansas
Biology

Teaching
Ecology lecture and laboratories, Concepts in Biology 2 laboratoires, Conservation Biology, Current Topics in Biology (Lyme Disease)

Research Interests
Foraging Behavior, Mammalogy, Forest Ecology, Biology Education

In 2016, Dr. Wood mentored one graduate student in completing and defending his master’s thesis on local populations of black-legged ticks and *Borrelia burgdorferi*, the bacteria that causes Lyme disease. She collaborated with undergraduates on projects to assess student writing and to measure learning gains in introductory biology courses.

Presentations
- Wood MD and Wood JM. 2016. The data are: helping ecology students conform to discipline-specific writing conventions. Mid-Atlantic Chapter of the Ecological Society of America Annual Meeting.
- Wood JM and Wood MD. 2016. The data are: helping ecology students perform discipline-specific writing conventions. Conference on College Composition and Communication Annual Conference.
Temporary Faculty

Zareen Amin
Instructor

BS, MBBS Medicine and Surgery, Dhaka University
MEd Community Health Education, Kent State University

Teaching
Anatomy and Physiology I laboratories

Scholarly Interests
Human Anatomy and Physiology; Human Biology; Disease, Health and Wellness; Health Education.

Service Activities
Involved with students outside class at ABLE, the Academic Biology Learning Environment center, where resources like books, lab manuals, microscopes, slides, bones, models are available. Guiding individual or groups of students needing extra help with their course. I have also done review sessions at ABLE, for students, before an exam.

Deborah Heitzman
Instructor

M.S. Biology, Bucknell University

Teaching
Anatomy and Physiology I laboratories; Anatomy and Physiology of the Head, Neck and Thorax laboratories; Concepts in Biology 1 laboratories
DEPARTMENT STAFF

Melinda S. Diltz
Biology Laboratory Coordinator / Instructor
M.S. Millersville University of PA
Biology

Duties
Train and supervise Anatomy & Physiology, Microbiology, and Concepts undergraduate student lab assistants. Train and supervise graduate assistants in laboratory prep duties and teaching assistant duties. Supervise and complete the set-up, testing, and teardown of Anatomy & Physiology I and II, Anatomy and Physiology of the Head, Neck Thorax, and Concepts in Biology I laboratories. Supervise and complete the preparation of sterile media, equipment and supplies for Introductory Microbiology, Microbiology, and Medical Microbiology laboratories. Maintain and inventory all laboratory equipment and perform routine maintenance on equipment including follow-up on equipment sent out for repair. Assist with set-up and teardown of lab exams. Proctor lecture and laboratory exams. Supervise and assist in the maintenance of living specimens such as frogs, fish, worms, crayfish, snakes, lizards, hamsters, and turtles. Determine need, find vendors, and place orders for laboratory supplies and keep a record of receipt of supplies. Coordinate the disposal of chemical wastes, preservatives, and medical wastes. Inventory laboratory equipment in the department. Inventory equipment containing refrigeration in the department. Carry out other special assignments for the Department Chairperson and the Dean of the College of Science and Technology as required.

Teaching
Anatomy and Physiology laboratories, Concepts in Biology 1 laboratories

Service Activities
Space and Facility Committee, Bloomsburg University of Pennsylvania 2006 to present.

Amy Hettinger
Department Secretary
MEd Student Affairs
Kutztown University of PA
Graduate Program in Biology

2016 has been a very active year for the Master of Science Program in Biology. The curriculum for the Accelerated Program, leading to both a Bachelor’s and a Master’s degree in 5 years, has been approved and will begin in 2017. Recruitment of highly accomplished students into this novel Accelerated Program has already begun. Nine new students joined our traditional Master’s program in 2016. These new students are currently developing their proposed research under the guidance of graduate faculty.

We have had six students complete their Thesis research and graduate in 2016, and an additional 3 students have defended their research agenda and have been admitted to Candidacy. Our graduate students continue to act as mentors to undergraduate researchers and tutors for undergraduate courses, substantially enriching the educational experience of our lower-level students. Graduate student research continues to provide breadth and continuity to research efforts within the Department. Students have published numerous scholarly and popular articles, have presented their findings at professional meetings, and have successfully garnered grant support for their research. The Master of Science Program in Biology is strong, growing, and diversifying as we head into 2017.

Theses completed in 2016

- Alan Belles. Call Characteristics of Island and Mainland Anaxyrus Fowleri (Fowler’s Toad): Are Mainland Males Ending on a Good Note? Advisor: John Hranitz.

Graduate Student Scholarly Publications in 2016:


Graduate Student Oral and Poster Presentations at Professional Meetings in 2016

- Price, Rebecca. 2016. Geodemography of Type 2 Diabetes Mellitus in Pennsylvania. Pennsylvania Academy of Science, Delaware Valley University, Doylestown, PA.
Extramural Grants Secured by Graduate Students in 2016


Notes and Popular Articles Published by Graduate Students in 2016


Jamie Shinski presenting her Thesis work at the Hellbender Symposium.  Sean Hartzell collecting crayfish for his Thesis research.
ABLE, short for Academic Biology Learning Environment, is a resource area in the Health Science Living-Learning Community Room on the first floor of Columbia Residence Hall. ABLE provides a place and resources for students in introductory biology courses to study individually and in groups, and with faculty and graduate assistants in our biology masters program. ABLE kicked off the academic year with an Open House on September 15, 2016. Over 50 students, BAHS faculty members, graduate assistants, Dean Aronstam, and Assistant Dean Venditti attended. Students had the opportunity to view ABLE resources and facilities, meet faculty and tutors, learn about ABLE workshops, office hours, and study sessions, and of course have some snacks. Dr. Hess's human body cookies were a big hit! Students also received prizes that ranged from school supplies to miniature skeletons. ABLE is supported by the Dept of Biological and Allied Health Sciences, and a TALE Center grant.
Our department’s chapter of Beta Beta Beta (Tri-Beta) has had a busy year! Tri-Beta is an honor society for biology students who achieve superior academic records and who display an aptitude for and an interest in the life sciences. Its mission is to stimulate scholarship, to disseminate scientific knowledge, and to promote biological research. Leading Tri-Beta during spring semester 2016 were President Chris Bastardi; Vice-President Kahli Castagnera; Secretary Jean-Nicole Place; Treasurer, Natalie Mayo; and Historian Jennifer Young; Fall semester 2017 officers were: President Lauren Chamberlin, Vice-President Emily Broadbent, secretary Alex Schlack, Treasurer Aubrey Cole and Historian, Gabriella Bonchack. Dr. Surmacz is the Tri-Beta advisor.

Some of the chapter’s activities this year include weekly tutoring to students in introductory biology course, sponsoring Mock Interviews for biology and allied health science majors, holding bake sales to fund chapter activities, hosting Biology Trivia, offering biology games at Children’s and Siblings carnival, participating in the Big Event, honoring seniors at an outdoor reception, and providing coffee and donuts to Hartline students, staff and faculty during finals week. The group collaborated with the BAHS club to hold a Merit Badge Workshop for area Girl Scouts and a reception following graduation. New members were initiated during a November ceremony. Dr. Angela Hess, the keynote speaker, addressed "The Sun and Your Skin—A Health Relationship."

Tri-Beta aims to promote and disseminate biological research. The BAHS chapter certainly met this challenge this year! Several members presented posters at the Tri-Beta Northeast District 2 Convention at Ursinus College. Jean Nicole-Place, mentored by Dr. Schwindinger, won first prize for her work on the “Methylations of GNG7 in Human Breast Cancer.” As a district winner, Jean was selected to present her work at the national convention in St. Paul MN where she won first prize in her category.

2016 was indeed a great year for Tri-Beta!
Biological and Allied Health Sciences Club

The Biological and Allied Health Science club is open to all majors in Biology, Health Science, and Medical Imaging. The club meets twice a month. Members were very active this year hosting biology related activities at the Bloomsburg Children’s Museum, Danville Elementary School, for Cub Scout Pack 24 and Pack 20, and for the Girl Scouts.

Faculty Advisors: Angela R. Hess and Jennifer Venditti

2015/2016 Club Officers:
- President: Dana Frobese
- Vice President: Kahlia Castagnera
- Secretary: Jenny Young
- Treasurer: Justin Van Der Molen
- Public Relations Officer: Natalie Mayo

2016/2017 Club Officers:
- President: MacKenzie McDowell
- Vice President: Elyse Shultz
- Secretary: Alexandra Ostman
- Treasurer: Torrey Brubaker
- Public Relations Officer: Julianna Hernandez
BioSynthesis, the newsletter of the Department of Biological and Allied Health Sciences is now online! Access the BioSynthesis to stay informed of department activities, clubs and organizations, upcoming events, research, alumni features, student achievements, faculty news, and more. Previous issues of BioSynthesis, capturing over ten years of BAHS history, are archived on the department website at http://departments.bloomu.edu/biology/biosynthesis.php

Have news to share? Please drop a line to Cindy Surmacz at caurmacz@bloomu.edu