



BioSynthesis

Volume 10, Issue 3 (December 2011)

BioSynthesis On-Line: <http://departments.bloomu.edu/biology/>

Upcoming Events

DEC 9: Last Day of Classes; COST Research Day, G38, G40, and G42 HSC, 3:00 to 4:30 p.m.
DEC 12 - 16: FINAL EXAMS
DEC 16: Graduate Commencement, Haas Center, 6:00 p.m.
DEC 17: Undergraduate Commencement, Haas Center, 2:30 p.m.
JAN 23: Spring Semester Classes Begin
FEB 3: Deadline to apply for BU Scholarships
MAR 2: COST Career Day, KUB
MAR 12 - 16: SPRING BREAK
MAR 24: Tri-Beta Northeast District Convention, Bloomsburg University, 108 HSC.
MAR 31: PA Academy of Sciences Meeting, Cedar Crest College.
APR 26 and 27: Health Sciences Symposium. Haas Center and KUB.



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Fall Semester 2011 Recap

Fall semester 2011 presented many challenges. As members of our community struggle to recover from the aftermath of Tropical Storm Lee and the flooding that ensued, we appreciate the opportunity to come together to learn even more. Despite the challenges imposed by cancelled classes and everyone's favorite make-up periods, we hope that all of you have had a successful and rewarding semester. Many of you have found a myriad of ways to assist those who have been impacted by the record-breaking flood. Members of the Biology and Allied Health Club and Tri-Beta Biology Honor Society (pictured below) have assisted with clean-up efforts at Frank W. Kocher Memorial Park on Fishing Creek, while Pre-Med Club members donated profits from a recent bake sale to flood relief efforts (pictured at right). Thank you for all that you have done and are doing!





Celebrating Student Success

Dean's List

Congratulations to Biology and Allied Health Students who earned a GPA of 3.5 or greater and were named to the Dean's List for Spring Semester 2011. Great job!

B.S. Medical Imaging: **Jessica Albright, Kellina Beers, Katherine Brandolino, Torie Brillhart, Andrew Christman, Morgan Cioffi, Jacklyn Cross, Kayla Drexel, Ashlin Fields, Leah Gaydos, Darcy Gilmore, Lindsay Hopkins, Lauren Horst, Erica Jurgensen, Ashley Kalage, Lindsay Kida, Jason Kneller, Sarah Lech, Brittany Levengood, Alexandra Mariano, Caitlin McFarlane, Kaitlyn Meck, Ellen Meisel, Valerie Niedelman, Sarah Pagni, Corey Pappas, Sebastian Ramirez, Erin Roberts, Corey Scheeler, Moira Sheridan, Brittany Shevock, Samantha Snyder, Sean Sterner, Alexander Thai, Brooke Thomson, Alita Umberger, Noelle Verosky, Michelle Weigle, Daniel Wetzel, Tara Whalen, Victoria Williamson.**

B.A. Biology: **Kristin Hein.**

B.S. Secondary Education, B.A. Biology: **Jessica Fisher, Sharon Graff, Ryan Harris, Christine Huntington, Kenneth Pallis, Jenelle Petresky, Meredith Salmon, Kathleen Steinberg.**

B.S. Secondary Education, B.S. Biology: **Ryan Smolock, Tracy Stutzcage** (Environmental Biology).

B.S. Health Science: **Courtney Bush, Jamie Hessels, Heather Love, Kaitlynn Nale, Jason Nolt.**

B.S. Health Sciences, pre-physical therapy: **Jane Armitage, Ashley Bossert, Angela Cipolla, Melanie DiMartino, Mollie Erb, Marykage Gallagher, Jacqueline Glaser, Melissa Goff, Kelsey Harm, Catherine Hughes, DeAnna Ingenito, Erik Karpinski, Lindsay Kupferschmidt, Shelby Maly, Matthew Maun, Amanda Penny, Alison Reigle, Alexander Riegg, Ashley Robertson, Julia Rush, Megan Scully, Bryce Showers, Michael Stecz, Krysta Whitmoyer.**

B.S. Health Sciences, pre-physician assistant: **Joelle Bittner, Amanda Capriotti, Brittany Carper, Elaine Daubert, Ariel Middleton, Michael Molesevich, Jenelle Romig, Amber Shifflet, Lauren Sosnoski, Erin States, Neil Sullivan, Stephen Taylor.**

B.S. Health Sciences, clinical lab science: **Alaina Egger, Melissa Montgomery, Heidie Warren.**

B.S. Biology: **Michael Brabander, Michael Busada, Meghan Duell, Brandon Dunbar, Chardei Eshleman, Ashley Mawhinney, Sarah Monaco, Jonathan Moore, Renee Risaliti, Elyse Ryan, Michelle Stipanovic.**

B.S. Biology, Environmental Biology: **Gabriel Barille, Robert Dorosky, Andrea Geist, April Magil, Jamie Smith**

B.S. Biology, pre-medical sciences: **Samantha Bussanich Tawny Engelberger, James Kearns, Kelsey Matthews, Steven Paliswiat, Amanda Pulsifer, James Redinski, Emily Whisel**

B.S. Biology, microbiology: **Joshua Mullen, Michelle Updike**

Biology minor: **Derek Weicht.**

Summer Research Opportunities

Summer Research Internship at The Weis Center for Research

The Weis Center for Research, Geisinger Health System in Danville, PA is sponsoring a 10-week summer research internship program. Interns will have the opportunity to do hands-on scientific research under the direct supervision of a Weis Center scientist on topics related to the molecular, cellular, and genetic basis of human disease. Interns will receive a stipend of \$8 per hour. The deadline for applications is January 31, 2012. B.S. Biology majors **Amanda Pulsifer** and **Darrin Doran** served as interns last summer. Amanda worked in the laboratory of Dr. Marius Sudol researching YAP, a proto-oncogene that also works in apoptosis. She used a YAP antibody to study YAP expression during regeneration in the Cnidarian, *Hydra vulgaris*. Amanda found her internship experience to be "invaluable" and she reports that she "thoroughly enjoyed her time there." For an application and additional information on the internship see: <http://www.geisinger.org/research/wcr/Summer%20Student%20Application%20Final.pdf>

Summer Undergraduate Research Internship Program (SURIP) at Penn State College of Medicine

Penn State College of Medicine invites undergraduates between the sophomore and senior year to apply for their summer research internship program. The program runs from May 29 to August 3. To learn more about the program, see <http://www.pennstatehershey.org/web/summerresearch/home> The application deadline is February 6, 2012.



News from BAHS Organizations

Biology and Allied Health Sciences Club

The Biology and Allied Health Club welcomes all interested students to join in a diverse array of club activities. This semester the club assisted in flood relief efforts by cleaning up Kocher Park on Fishing Creek. Club members also went on an Owling trip with Dr. Corbin. An admissions representative from Thomas Jefferson University informed the club about graduate programs in biomedical sciences and Dr. Brubaker spoke about opportunities for undergraduate research in the department. The club sponsored a very successful and highly appreciated Halloween bake sale. The group is making Christmas ornaments to give to children and elderly members of the community. Leading the club this year are: President, **Heather Ressler**; Vice-President, **Heather Kinney**; Secretary, **Steve Paliswiat**; Treasurer, **Katrina Rohr**; Public Relations, **Meghan Duell**; and Historian, **Samuel Kiernan**. The club's advisors are **Drs. Brubaker, Corbin, and Hranitz**. For more information on the club, contact any Biology and Allied Health Science Club officer. Check out their bulletin board adjacent to 100 Hartline.



Amanda Shott and Steve Paliswiat sell Halloween treats and soccer socks at fall semester fundraiser.



BAHS club clean-up at Kocher Park.

Tri-Beta Biology Honor Society

Tri-Beta, the biology honor society, had a productive semester. The group provided weekly tutoring sessions for students in introductory courses at ABLE, the Academic Biology Learning Environment, at the Science and Health Science Living Learning Community at Columbia Hall. Thanks to all of Tri-Beta members who donated their valuable time to helping their classmates. The group plans to continue this program in the spring semester. The group held its annual initiation ceremony in November (see page 11) and will end fall semester by offering its popular Free Coffee and Donuts during Finals Week (See announcement below.) At the helm of Tri-Beta this year are officers (pictured below from left): **Brandon Dunbar**, treasurer; **Heather Love**, vice-president; **Sarah Monaco**, historian; **Marykate Gallagher**, Secretary; and **Megan Duell**, President. For more information about Tri-Beta, check out the bulletin boards opposite 99 Hartline or check out the organization's website <http://orgs.bloomu.edu/betabetabeta>

Free Coffee and Donuts
 For COST students, faculty, and staff
Finals Week
Mon, Dec. 12 and
Tues, Dec 13
in the morning
178 HSC



WELCOME

BAHS welcomes new faculty members to the classroom this semester:



Dr. William Coleman

BAHS is pleased to welcome **Dr. William Coleman**, a new tenure-track faculty member. Dr. Coleman hails from Avoca, PA and received his B.S. in Biophysics from the University of Scranton and his Ph.D. in Molecular Biology from Lehigh University. His research investigates the functioning of the nervous system using electrophysiological techniques. His work is aimed at understanding how nerve cells communicate (synaptic transmission), and how this communication can change during different levels of activity (synaptic plasticity). He is specifically interested in how different molecular regulators within the presynaptic nerve terminal interact, and how they may affect synaptic transmission and plasticity. He is also interested in synaptic vesicle pool dynamics, how synaptic vesicles make transitions from one vesicle pool to another. Dr. Coleman has taught previously at Lehigh University. At BU, Dr. Coleman is currently teaching laboratories in Concepts in Biology I and Anatomy & Physiology I. He will teach neurophysiology during spring semester. For fun, Dr. Coleman enjoys reading, listening to music, playing guitar, playing golf and softball. Welcome Dr. Coleman!

Dr. Anna Reeves

Dr Anna Reeves is from St. Petersburg, Russia (not Florida!) She received her B.S. and M.S. at St. Petersburg State University (formerly Leningrad) and a Ph.D. in Radiobiology and Molecular Biology at the Research Institute for Radiology and Radiobiology in St. Petersburg. Her fields of expertise are radiology and radiobiology, molecular biology, biochemistry, and neurobiology. Dr. Reeve's most recent research interest is in cancer biology, where she investigated the molecular defects in signal transduction that occur in cancer. Her work focused on cancer treatments such as radiation and phytotherapeutics, potent natural anticancer compounds. She received grant funding to test the ability of a nanformulation of curcumin, commonly known as the Indian mustard turmeric, to kill cancer cells while sparing normal cells. Dr. Reeves has previously taught at Susquehanna University and King's College. At BU she is teaching laboratories in Anatomy and Physiology I and II. For fun, she enjoys gardening, reading, and watching some television. Welcome Dr. Reeves!



Introducing our Office and Lab Staff

The BAHS department office is housed in 115 Hartline (the room with the large picture window!) We welcome back **Ms. Vicki Beishline**, our department secretary. Our part-time student secretaries are **Scott Nacko**, **Michelle Sekunda**, and **Vincent Saraceno**. **Mrs. Melinda Diltz** is our Lab Coordinator. Undergraduate lab assistants are **Brandon Dunbar**, **Elizabeth Shober**, and **Samantha Oakes**. **Michael Brubaker** is assisting with Cell Biology laboratories, while **Whitney Knoll** is the genetics and green house assistant. Serving as graduate assistants are **Ryan Dorkoski** in the Anatomy and Physiology labs and **Neil Sullivan** in the Concepts 1 laboratory.

BAHS Greets New Grad Students

The BAHS Masters program is delighted to welcome four new graduate students this fall semester. **Neil Sullivan** and **Ghaith Ibrahim** are BU graduates. Neil will be working with **Dr. Venditti**. **Brandan Gray** joins us from Lycoming College where he focused on ecology as a biology major. **Courtney Swedson** graduated with a biology major from Mansfield University. Best wishes to all for a productive and rewarding graduate career. For more information about the master's program in biology, please see **Dr. Kristen Brubaker**, 177 Hartline.



Dr. Melnychuk Retires

Dr. Mark S. Melnychuk retired from Bloomsburg University in June 2011 after more than 31 years of service. Dr. Melnychuk was a professor in the Department of Biological and Allied Health Sciences. He earned a B.S. in biology with honors from Moravian College and a Ph.D. in biological sciences from Kent State University, specializing in physiology and endocrinology. At Bloomsburg University, Dr. Melnychuk taught a wide array of classes including Nutrition, Human Biology, Biology of Aging, Anatomy and Physiology I and II, Vertebrate/Mammalian Physiology, Animal Cell Physiology, Comparative Vertebrate Physiology, Endocrinology, and Neurophysiology.

In addition to his teaching, Dr. Melnychuk pursued several directions in research during his tenure at Bloomsburg. In collaboration with Dr. Lynne Miller, he investigated nutritional perturbations on reproduction in *Hymenolepis diminuta*. Dr. Melnychuk

later joined forces with Dr. Christopher Hallen to analyze water samples from Fishing Creek.

Dr. Melnychuk also has a long and distinguished record of service to Bloomsburg University and the wider community. He served as the Assistant Chairperson of the Department of Biological and Allied Health Sciences and as an administrator for BU's Summer College. He was elected to serve as a state delegate to APSCUF's Representative Assembly and as a member of the campus group Meet and Discuss. He was the chair of the campus Institutional Assessment Committee and was elected to the Planning and Budget Committee. For many years, he was the co-chairperson of the Pre-professional Advisory Committee and an advisor to pre-medicine students. He served on numerous department committees including evaluation, planning, and equipment. In the community, Dr. Melnychuk has been a member of the boards of directors of the PA Nutrition Education Network, Columbia-Montour Home Health, and the American Lung Association.

In retirement, he plans to enjoy some of his favorite pastimes, fishing, golfing, and chopping wood. He aims to grow hops and plant fruit trees at the family vacation home in Vermont. When asked what he will miss most about Bloomsburg University, Dr. Melnychuk unequivocally states teaching in the classroom. He will miss his fellow faculty members, students, staff, secretaries, and administrators in Summer College. On reflecting on his 31.5 years, Dr. Melnychuk is happy he came to BU. Since 1979 he has seen a lot of growth and development on campus and he hopes that it continues. Congratulations on your retirement Dr. Melnychuk! We will miss you!

APPLY FOR A SCHOLARSHIP!

Biological & Allied Health Sciences Scholarships

Scholarship	AMOUNT	CRITERIA
Biology and Allied Health Scholarship	\$500 or \$250	Biology (including Secondary Education Biology) and Health Science majors who are currently sophomores or juniors and have completed 12 credits in biological science courses at BU
James E. Cole Scholarship	\$425	Current BU Medical Imaging majors who will be on campus fall 2012
James E. Parsons Microbiology Scholarship	\$400	Biology and Allied Health Science majors who are currently sophomores or juniors. Preference to microbiology option or Clinical Lab Science majors.

HOW TO APPLY

APPLICATION:

Required: BU Scholarship Application Form (may be obtained from the Financial Aid Office, 119 Warren Student Services Center), official transcript, one reference letter from a biology faculty member, one reference letter from a faculty member outside biology and a paragraph describing your career and educational goals.

DEADLINE:

Applications are due to **Dr. Surmacz**, 146 HSC, by Friday February 3, 2012 at 4:30 p.m.



Spring Biology Electives

Here are the BAHS biology elective offerings for Spring Semester: Bio 361, Comparative Vertebrate Anatomy (**Dr. Corbin**); Bio 435/535, Bioinformatics (**Dr. Davis**); Bio 442/542, Virology (**Dr. Nolt**), Bio 470/570, Medical Parasitology (**Dr. Henry**); Bio 476/576, Neurophysiology (**Dr. Coleman**); Bio 489/589, Current Topics-Stream and River Ecology (**Dr. Rier**); Bio 411, Radiation Biology (**Dr. Fallahian**). Writing in Biology (**Dr. Ardizzi**) will also be offered. The spring physiology offerings are: Plant Physiology (**Dr. Williams**), Human Physiology (**Dr. Hansen**), and Integrated Physiology Lab (**Drs. Hansen and Williams**). See you in class!

Summer Research: Dr. Corbin heads West

Dr. Clay Corbin traveled west this past summer for research, mainly in Arizona and Idaho. His first stop was the Coconino National Forest in Northern Arizona where he teamed up with Dr. Tom Martin, from the University of Montana (Dr. Corbin's alma mater) and Martin's "bird camp" crew. Bird Camp is an annual research team of about 25 undergraduate, graduate, and post-doctoral students, and other professional ecologists, whose goal is to understand life history of birds in this unique part of the world. The team consists of banding, nest-searching, and video crews. Essentially, the initial goal is to find birds on the site that are breeding, locate their nests, and then collect video data on the nestlings. Ultimately, Martin and crew are studying everything from survivorship rates, maternity/paternity, microhabitat requirements, whole-nest metabolic rates, and killing-factors of these bird populations. The latter includes some grisly video of nest predation (chipmunks aren't so cute with a day-old nestling in their mouth)!

Dr. Corbin's specific objective was to collect morphological and performance data on the adult birds themselves. He's interested in whether birds from very different evolutionary backgrounds (e.g. warblers, flycatchers, mockingbirds, etc.) are convergent in their feeding performance and if so, whether they are using the same or different anatomical traits to facilitate that performance. Hence, he went out with the banding crew each morning to set up nearly a thousand square meters of mist-netting in the forest. Birds caught in the nets were then processed at a mobile banding station. During processing birds are banded with a unique combination of color bands, measured, aged, sexed, weighed, bled (for genetic data), and released unharmed. Because of the color bands, if the bird is seen again that season, or even years later, the team would know (without having to catch it again), its sex, age, and, ideally, it's reproductive fitness. Specifically, Corbin collected morphological measurements on the head and bill and as well as bite force on 17 different species including things like grosbeaks, sharp-shinned hawks, and brown creepers. Photo (by C. Corbin) is a Warbling Vireo (*Vireo gilvus*) in northern Arizona. Dr. Corbin's research is in preparation but you can read about biology of the Coconino and Mogollon Rim site (and check out FIELD JOB OPPORTUNITIES) here: <http://www.umt.edu/mcwru/personnel/martin/MartinResearchProjects.aspx>



Dr. Corbin's second western destination was the Panhandle National Forest in northern Idaho. There, he met up with researchers from Missouri, Illinois, and Ohio to help with a project on Rocky Mountain tailed frogs (*Ascaphus montanus*) (They get their name from their distribution and the fact that cloacae of adult males are extended for aid in intromission). The project leader was Dr. Richard Essner from Southern Illinois University. Essner and team are studying these frogs to understand the evolution of leaping. What is really interesting about these frogs is that they inhabit small torrential streams in the Mountains of Idaho. They do not have to continually leap along the ground to get away from predators, they just hop into the stream and are quickly swept away. There is no reason for the extension and retraction of their hips to be coupled as seen in most other semi-terrestrial frogs...in other words, if you watch them leap, they do a belly-flop! This, added to the fact that they are nocturnal and silent, makes for some interesting midnight adventures in the Pacific Northwest. Here's some interesting reading and links to videos from Essner's work:

Easy-reading and videos: <http://www.springer.com/about+springer/media/springer+select?SGWID=0-11001-6-973721-0>.

Some of the science: Essner RL, Suffian, DJ, Bishop PJ, and SM Reilly. (2010). Landing in basal frogs: evidence of saltational patterns in the evolution of anuran locomotion. *Naturwissenschaften*. 97:935-939.

Photo (by M. Jorgensen) is of a tailed frog in northern Idaho.

Summer 2011 Research Experiences for Undergraduates in the Republic of Turkey and Greece by Dr. John M. Hranitz

Images of hamburgers from Memorial Day weekend still echoing in my mind, I drove to Oklahoma for the first part of a Research Experiences for Undergraduates (REU) program supported by the National Science Foundation (NSF). I join faculty from Oklahoma and students from all over the U.S. to form a research team that studies bee behavior and ecology in Turkey and Greece. The program lasts for eight weeks, during which time the NSF pays student expenses and salary. Students were busy, working full days for all eight weeks! They completed two experiments in Greece and four experiments in Turkey. The REU Students will present posters communicating their research at the January 2012 meeting of the Society for Integrative and Comparative Biology in Charleston SC. While traveling in historic areas in Greece and Turkey, students are immersed in cultures that were established thousands of years ago and gain exposure to two languages, with most students developing use of Turkish vocabulary and phrases. At bottom (pictures from L-R), Hagia Sophia (the largest cathedral for about 1000 years), sign for the Grand Bazaar, students at the Lesvos Petrified Forest (largest in the world), and Amanda measuring nectar in yellow star-thistle.



Undergraduate Research into a Case of Island Dwarfism: Fowler's Toads on the Eastern Shore of Virginia. by Dr. John M. Hranitz



For millennia, humans have traveled to islands and returned with stories of unique island plants and animals. As biologists we realize that, because of their isolation and unique environments, islands are natural laboratories for ecological and evolutionary experiments. In fact, many of you may have direct experience with one of these islands, Assateague Island, located about 45 minutes south of Ocean City MD. This summer three undergraduate students (**Gabriel Barrile**, **Corey Bower**, and **Laurel Downs**) stepped onto natural laboratories at Assateague Island and Wallops Island Virginia in search of underlying causes of island dwarfism in toads of the

Eastern Shore of Virginia. Each student is researching a question, related to the underlying cause of island dwarfism in these toads, by comparing island and mainland populations of toads and frogs. **Gabe Barrile** is studying larval and post-metamorphic growth rates in developing toads, **Corey Bower** is conducting a comparative study of toad body size distributions with that of other anurans (e.g., Green Tree Frog). **Laurel Downs** is investigating the reproductive effort of toad females, clutch size and egg size. Photos of toad research in action: Gabe and Laurel measure a green tree frog (top left), Fowler's toad calling (bottom left), green tree frog calling (bottom middle), Laurel and Gabe counting thousands of eggs (right).

BAHS Students Study Abroad in China

Dan Copes (B.S. Health Sciences) and **Katie Haughey** (Pre-Occupational Therapy) had the academic adventure of a lifetime by studying abroad in China. Dan (pictured at left) and Katie (right) were among a group of eight BU students who spent part of their summer in China studying at Shandong University of Technology. Dan and Katie learned about Qi culture, Chinese tradition and modernization, and the impact of Confucius philosophy. Check out their blogs on the BU website for details and photos of their interesting journey. (http://bloomu.edu/blog/china_abroad)





Pre-professional Committee UPDATES

What is the pre-professional committee?

The BU pre-professional committee assists students in gaining admission to professional schools such as allopathic, osteopathic, podiatric, or veterinary medicine, as well as dentistry, optometry, podiatry, and chiropractic medicine. The committee's mission is to provide advisement, assist with the application process, evaluate student credentials, prepare committee recommendation letters, obtain resources for students relating to professional schools, and establish relationships with professional schools. This semester, the committee hosted an informational meeting at ABLE in the Columbia Science and Health Science Living Learning Community Room. The co-chairs of the committee are **Drs. Joseph Ardizzi** and **Cindy Surmacz** from BAHS. Other committee members include **Dr. Karl Henry** (BAHS) and **Drs. John Morgan** and **Toni Trumbo-Bell** from Chemistry. For more information on pre-medical sciences at BU, students are encouraged to check the committee's website (<http://departments.bloomu.edu/biology/preprof.htm>) and the pre-med club bulletin board outside room 145 HSC. You are also encouraged to join the Pre-professional /Graduate Community on BOLT by contacting Dr. Trumbo-Bell (tbell2@bloomu.edu).

BAHS Students Accepted to Medical School

Hearty congratulations to two more BAHS students who were accepted to medical school. **Michael Busada** (B.S. Biology, May 2011) is attending Philadelphia College of Osteopathic Medicine. **Amy Cortellini** (B.S. Biology, December 2010) is enrolled at Lake Erie College of Osteopathic Medicine. We are proud of our 88% acceptance rate!

Pre-Medical Sciences Club

The Pre-Medical Sciences Club welcomes all students interested in any of the medical sciences (allopathic or osteopathic medicine, optometry, podiatry, dentistry, veterinary medicine, etc.) Leading the group this year are pictured from left: Public Relations, **Samantha Oakes**; Treasurer, **Ashley Cameron**; Advisor, **Dr. Ardizzi**; Vice-president, **Jessica Willis**; President, **Eliza Reed**; and Secretary, **Steven Paliswiat**. The Pre-Med club has had a busy semester. The group hosted guest speakers from Ross University, Lake Erie College of Osteopathic Medicine, Philadelphia College of Osteopathic Medicine, and the University of South Florida College of Medicine (representing the collaborative program with the Lehigh Valley Health Network). The Pre-Med Club sponsored a question and answer session on preparing for the Medical College Admission Test (MCAT). Two bake-sale fundraisers were held in Hartline Lobby. The proceeds were donated to AGAPE for flood relief efforts and to purchase review books for the library for the Dental Admissions Test (DAT) and the Optometry Admissions Test (OAT). The club has previously purchased MCAT preparation books by Kaplan that are available on reserve at Andruss Library. Activities planned for the spring include additional guest speakers, fund-raisers, and preparing T-shirts. The club will participate in March Madness, a series of sessions presented by the Pre-professional committee, that help prepare students for the medical school application process.



Get Ready for the MCAT!

The MCAT, a test developed by the American Association of Medical Colleges, is the standardized test required for medical school admission. The MCAT is a computerized exam that assesses mastery in biology, general and organic chemistry, physics, scientific problem solving, critical thinking, and writing skills. Scores are provided in four categories: biological science, critical thinking, physical sciences, and writing. The MCAT is administered over 20 times per year with your choice of a morning or afternoon testing session. Score reports will be available in 30 days. Dates for 2012 are: January 27, 28; March 24; April 5, 13 and 28; May 12, 19, 24, 31; June 21; July 6, 14, 26, 27; August 3, 4, 10, 16, 17, 23; Sept 1, 6, 7, and 11. A calendar of exam times is posted on the pre-medical sciences club bulletin board outside 145 Hartline. Go to www.aamc.org/students/mcat/ for information and to register for the exam.



Financial Assistance for Medical School Applicants

The American Association of Medical Colleges recognizes the high cost of applying to medical school and provides financial assistance to those with demonstrated need. Applications for fee assistance are available at www.aamc.org/fap. Students qualified for fee assistance receive reduced MCAT registration fees, an AMCAS application fee waiver, and a free guide to the MCAT. Many medical schools waive supplemental application fees for students who qualify for assistance.

Allied Health News

BAHS Students Head to Clinical Programs



Over 50 BU students have entered clinical programs this semester. Their clinical sites and specialties are listed below (Key: RT, Radiologic Technology; MRI, Magnetic Resonance Imaging; CT, computerized tomography; NM, Nuclear Medicine; S, Sonography; CLS, Clinical Lab Science.)

Abington Memorial Hospital, Willow Grove, PA: **Alyssa Rubin** (RT); Christ Hospital, Jersey City, NJ: **Tara Sweeney** (RT); Englewood School of Radiography, Englewood, NJ: **Kristin Peterson** (RT); Johns Hopkins Hospital, Baltimore, MD: **Jessica Albright** (S), **Jacklyn Cross** (S), **Traci Hoon** (NM), **Lindsay Kida** (RT/CT), **Caitlin McFarlane** (RT/CT), **Daniel Wetzel** (RT/CT), and **Victoria Williamson** (S); Memorial Medical Center, Johnstown, PA: **Lindsey Gulmy**; College Misericordia: **Alissa Heimbach** (S), **Lauren Shive** (S); Washington Hospital, Washington, PA: **Ryan Edwards**; Reading Hospital and Medical Center: **Darcy Gillmore** (RT), **Kaitlyn Meck** (RT), **Woodna Nerjuste** (RT), **Corey Pappas** (RT), and **Alita Umberger** (RT), Trinity Health Hospital, Minot, ND: **Morgan Cioffi** (RT); University of Pennsylvania Hospital: **Dana Datillo** (RT), **Lindsay Hopkins** (RT), **Brittany Levengood** (RT); **Candice Massina** (RT), **Shaina Selner** (RT), **Amy Swanson** (RT), and **Angela Worley** (RT); York Hospital, York, PA: **Jordan Shrader** (RT), **Brandi Thompson** (RT) and **Brooke Thompson** (RT); Geisinger Medical Center, Danville, PA: **Torie Brilhart** (RT), **Lauren Horst** (RT), **Kirk Jarrett** (RT), **Donna Rosenberg** (RT), **Corey Scheeler** (RT), **Brittany Shevock** (RT), **Diane Skirka** (RT), **Sean Sterner** (RT), **Kristen Tarlecki** (RT), **Melissa Welkom** (RT)

Medical Imaging Majors visit Johns Hopkins Hospital

Dr. Nolt and a group of enthusiastic medical imaging majors trekked to Baltimore to visit Johns Hopkins Hospital. The students had the opportunity to learn about their medical imaging clinical programs, to meet with faculty and students, and to tour the facilities. BAHS medical imaging majors that attended are **Leah Gaydos**, **Courtney Rudisill**, **Valerie Niedelman**, **Laura Perchy**, **Moira Sheridan**, **Andrew Christman**, **Lisa Magulak**, **Jen Sabins**, **Josh Ruffner**, **Kellina Beers**, **Sebastian Ramirez**, and **Britney Klinger**.



Health Science Fall Happenings

Medical Imaging and Health Science majors had the opportunity to learn about health care careers from several visitors this semester. Mr. Don Sharples, Director of Admissions, Thomas Jefferson University, College of Health Professions spoke to students about TJU's programs in pharmacy, occupational therapy, and physical therapy. Mr. Ken Roszel, Director of the Radiologic Technology program at Geisinger presented career information to medical imaging majors. BAHS allied health coordinator, **Dr. Kipe-Nolt**, held a session for medical; imaging students on how to apply to clinical programs. Good luck to all of those who are applying to clinical programs. Keep us posted!



Greetings from BAHS Pre-PT Alumni

2011 Health Science alumni send greetings from Thomas Jefferson University in Philadelphia, PA. Currently completing their first semester in the doctoral program in physical therapy are spring 2011 B.S. Health Science graduates: **Melanie DiMartino**, **Julia Rush**, **Kyle Reid**, **Amanda Kaehler**, and **Melissa Goff**.

In Memoriam: Dr. Gary Wassmer (1961 - 2011)

The Department of Biological and Allied Health Sciences mourns the loss of our colleague, teacher, and friend, Dr. Gary T. Wassmer. Dr. Wassmer died unexpectedly on April 24, 2011, leaving behind his wife Catherine Chayko and two children, Joseph and Marianna. Dr. Wassmer was originally from Honesdale, PA and attended Chenango Valley High School. He earned a B.S and M.S from State University of New York, Binghamton and a Ph.D. from the University of Delaware. His expertise was in the area of entomology and his research focused on biological rhythms in insects.



Dr. Wassmer was an associate professor at BU since 2000. Among the courses Dr. Wassmer taught were: Human Biology Anatomy and Physiology I and II; Human Sexuality; Entomology; Social Implications of Biology; Neurophysiology; Cells, Genes and Molecules; and Current Topics. Dr. Wassmer actively served the department and BU community. In Fall 2010, Dr. Wassmer traveled to Africa as a Fulbright Scholar. He taught Entomology and assisted local farmers in Uganda. Dr. Wassmer shared his impressions and experiences in Africa in February 2011 edition of BioSynthesis. He is shown at left with children he met.

The Department of Biological and Allied Health Sciences has lost a valued colleague and friend. We will greatly miss Dr. Wassmer's passion as a scientist, his generosity as a colleague and advisor, his compassion for others, and his warmth, good humor (and puns), and enthusiasm.

Dr. Michael Shepard, Professor, Department of Geography and Geosciences, paid tribute to Dr. Wassmer's life as a scientist and teacher in his column "The Curious Professor" for the Press Enterprise. Dr. Shepard's tribute appears with permission below.

In the original Star Trek series, Captain Kirk would ask Spock what time it was, or how long since some event had occurred, and Spock would always give a precise answer without looking at a watch – as if he had one hardwired into his brain. In a way, each of us has an internal clock that keeps "body time", also known as the "circadian rhythm."

Scientists have found that most creatures – animals, plants, and even microorganisms – have these internal clocks. You might think you could adjust to a 20 or a 28 hour day without any trouble, but you'd be wrong. The 24 hours is wired deeply within our brains. When people are put in places where there is no natural day/night cycle, like caves or Las Vegas casinos, their bodies still keep a 24 hour clock cycle. Even after months of isolation, the clock keeps time.

There are a whole slew of biological functions that operate on this internal clock. Your body temperature is lowest before dawn, your blood pressure peaks at dinner, and your body is most primed for exercise in the afternoon.

We can't easily change the 24 hour period of our clock, but its starting point is "reset" each day by daylight and darkness. The adjustment is usually very small because the beginning of the day changes very slowly through the year. But if we quickly change time zones, we suffer from horrible jet lag because our clock gets out of synch with day and night. Our bodies will shift the clock to get back in step, but it takes a while. People who work the night shift are constantly fighting this natural reset function. The recent spate of air traffic controllers falling asleep on the night shift is one example.

The onset of daylight sets our clock. But the amount of light within the 24 hour day also plays a role in its operation. Most of us know somebody who often feels blah in the winter – when there are fewer hours of daylight. Chemicals within the brain that affect our mood are controlled by the circadian rhythm and the amount of daylight in each 24 hour cycle.

Gary was curious to see if the length of daylight controlled anything else. In one experiment, he raised cockroaches in many different daylight/nighttime cycles. He discovered that those with 10 hours or less of light per day didn't grow at all. As he increased the amount of light per day, he found that they grew faster. At 18 hours of light per day, the bugs grew at tremendous rates. And when he tried to change the length of the day to something other than 24 hours, the insects did not do well – the internal clock would not change. Discoveries like this may be important to farmers or others who want to know how to maximize the growth rate of their flocks or herds.

Light is the most powerful cue for our circadian rhythm, but it's not the only one. Scientists have discovered that some animals have their circadian clock changed by increasing or decreasing the temperature. In one experiment, Gary flew beetles on the Space Shuttle to see if gravity affected the circadian rhythm. Surprisingly, he found that changes in light and gravity – from zero up to twice Earth gravity – could change a beetle's internal clock to something *other* than 24 hours. Understanding why this happens may eventually lead to a way to help thousands of people who suffer from circadian-rhythm sleep problems. These people, for whatever reason, have circadian clocks that don't keep 24 hour time – but something longer or shorter. They have a terrible time falling asleep and waking up on a 24 hour clock, and it affects their work, family, and health.

Gary was a true scientist – a man passionate to discover more of nature's secret knowledge and to share it with his students and colleagues. He will be missed.



Fall Semester Research Highlights

Honors Research Shared

Two BAHS senior biology majors recently presented their honors research to the campus community. **Brandon Dunbar** discussed his research on *Pythium* and **Meghan Duell** presented her work on stress responses in honeybees at recent seminars at BU's Honors Center. Brandon's mentor is **Dr. Nolt** and Meghan's mentor is **Dr. Hranitz**.

Rabb Research Award

Cassandra Thompson, B.S. Biology, pre-medical sciences, received the Donald D. Rabb Biology Research Award for undergraduate research. The award provides funds for BAHS undergraduates to purchase research supplies. Cassandra is investigating intracellular stress responses in blackworms with research volunteer **Heather Ressler**, B.S. Clinical Lab Sciences. Their mentors are **Drs. Surmacz** and **Hranitz**.

BAHS majors to present research at COST Research Day

What has been happening in BAHS research labs this semester? Check out COST Research Day on Friday, December 9. The following students are presenting research in G38 Hartline:

- 3:30 p.m. **Tom Blass**. Isolation and Characterization of a Putative Anti-FRO2 Antibody Gene. Mentor: **Dr. Davis**.
 - 3:45 p.m. **Amanda Pulsifer**. The Role of YAP in Hydra Regeneration. Mentors: **Dr. Hansen** and Dr. Sudol (Weis Center).
 - 4:15 p.m. **Rachel Rathmel**. Screening of Cross-species Primer Sets for Ability to Amplify Microsatellite Loci in the Goose neck Barnacle. Mentor: **Dr. Hranitz**.
 - 4:30 p.m. **Brandon Dunbar**. Studies on the Effect of Composted Material on *Pythium* Root Rot Disease. Mentor: **Dr. Nolt**.
- POSTER: **Rachel Rathmel**. An Empirical Approach to Measuring Bite Force and Tooth Morphology in Servals (*Leptailurus serval*). Mentor: **Dr. Corbin**.

Students attend Susquehanna River Symposium

Keith Kinek and **Ryan Dorkoski** presented a poster on their research entitled "Using Extracellular Enzymes to Monitor Water Quality in Streams" at the Susquehanna River Symposium at Bucknell University in October. Catch Keith (left) and Ryan (right) in action in the photos at right. **Dr. Rier** is their mentor.



Congratulations to Fall Semester Graduates!

- ★ **David Bower**, B.S. Biology
- ★ **Darrin Doran**, B.S. Biology, pre-medical sciences
- ★ **Sharon Graff**, B.S. Secondary Education, BA. Biology
- ★ **Martin Grammel**, B.S. Biology, microbiology
- ★ **Hansal Jani**, BS. Biology
- ★ **Samuel Kapral**, BS. Biology

- ★ **Giselle Lara**, B.S. Biology, microbiology
- ★ **Craig Kauffman**, B.S. Health Sciences, pre-physical therapy
- ★ **April Magill**, BS. Biology, environmental biology
- ★ **Rachel Rathmell**, B.S. Biology, pre-medical sciences
- ★ **Lauren Statile**, B.S. Health Sciences, pre-physical therapy

Honor Graduate:
Darrin Doran, Magna cum laude



NOTICE TO DECEMBER GRADS

All students graduating with a BS or a BA in Biology or a BS in Health Sciences in December or student-teaching in Spring 2012 must take the ETS Major Field Test in Biology. The test will be given on Tuesday, December 13, 2011 from 1:00-3:00 PM and Wednesday, December 14, 2011 from 3:30-5:30 PM. Sign up for a date to take the test in the Department of Biological and Allied Health Sciences Office, 115 Hartline. Contact **Dr. Wood**, 147 Hartline, if you have any questions. Graduation is Saturday, December 17, 2011 at 2:30 p.m. in Haas Auditorium.