



BioSynthesis

Volume 9, Issue 3 (October 2010)

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

Fall Semester Dates

OCT 11: Medical Imaging Application Night, 6 p.m., 122 HSC.

OCT 12: BAHS Club, Research Night, 7 p.m., G40 HSC.

OCT 13: Tri-Beta Tutoring, 4 to 5 p.m., ABLE, first floor Columbia.

OCT 15: Deadline to apply for Tri-Beta membership.

OCT 19: Pre-Med Club Speaker, Temple University School of Podiatric Medicine, 6 p.m. ABLE.

OCT 20, Tri-Beta Tutoring, 4 to 5 p.m., ABLE.

OCT 21: Pre-Med Club Speakers in 178 HSC: A.T. Still University School of Podiatric Medicine, 11:30 a.m.; Lake Erie College of Osteopathic Medicine, 7:00 p.m.

OCT 18: Thomas Jefferson University visit, 7 p.m., G42 HSC.

OCT 26: BAHS Club Meeting, 7 p.m., G40 HSC.

OCT 26 and 27: Halloween Bake Sale, Pre-Med Club, HSC lobby; Tri-Beta Tutoring, 4 to 5 pm, ABLE.

NOV 7: Tri-Beta Initiation, 3:00 p.m., Kuster Auditorium, 108 HSC.

NOV 10: BAHS Club, 8 p.m., 178 HSC.

NOV 20: Practice MCAT, 9 a.m. to 2 p.m., 262 HSC



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We're Back! Hartline Science Center Renovations Completed



Hartline Rededication Planned



Hartline Science Center will be rededicated on November 12, 2010 from 3:30 to 5:00 p.m. Events will take place in the newly renovated lobby area. Everyone is welcome to attend. Stay tuned for details.

The 2010-2011 academic year got off to a great start as students, faculty, and staff returned to a fresh, newly renovated Hartline Science Center. Hartline was modernized from top to bottom including new infrastructure and technology, a student computer lab in the lobby, updated research and teaching labs, and refurbished classrooms and offices. Pictured above, BAHS students **James Kearns**, **Shannon Carper**, and **Amy Schultz** check out the cool new furniture in the lobby. The new spaces will provide a great environment for learning together both in the classroom and in the laboratory. Special thanks to all of the faculty, staff, and students who were involved in the packing and moving. It was well worth the effort!

Check out new faculty office locations and contact information on page 5. Come and find us!

BAHS Welcomes You

WELCOME

Welcome to all new freshman, transfer students, and returning students. We're delighted that you're here! The Department of Biological and Allied Health Sciences (BAHS) is a busy, vibrant, and diverse place. We are eager to get to know you and we look forward to working with you.

What are your BAHS classmates studying? Here is BAHS by the numbers:

Fall 2010 Enrollments

Biology (243)	Allied Health Sciences (375)
BS (general) (59)	BS Medical Imaging (162)
Environmental Biology (23)	BS Health Science
Microbiology (5)	General (12)
Molecular Biology (5)	Clinical Lab Science (21)
Pre-Medical Science (93)	Pre-physical Therapy (80)
BA (general and BS Ed) (54)	Pre-physician Assistant (75)
Natural History (4)	Pre-Occupational Therapy (10)
	Pre-Pharmacy (15)



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 2010. Great job!

B.S., Medical Imaging: **Jessica Albright, Dixie Alexander, Marcy Brymier, Kalie Behler, KCann Blank, Torie Brillhart, Morgan Cioffi, Ryan Cirocco, Rebecca Conrad, Stefanie Duva, Megan Filipski, Karmyn Gill, Alissa Heimbach, Julie Heimbach, Jillian Kida, Lindsay Kida, David Kolk, Sarah Lech, Ashley Lopez, Robert Medon, Valerie Niedelman, Maria Palmieri, Ryan Parise, Anna-Lee Pflomm, Moira Sheridan, Brittany Shevock, Michael Snyder, Rebecca Snyder, Sean Sterner, Kaitlyn Tange, Sara Taylor, Daniel Wetzal, Victoria Wetzal, Maura Williams, Victoria Williamson, Cory Worgen.**

B.S. Health Science, pre-physician assistant: **Joelle Bittner, Brittany Carper, Ethan Ernst, Marc Francola, Kathryn Hertzog, Heather Love, Michael Molesevich, Gretchen Moore, Kaitlynn Nale, Richele Ohnmeiss, Justine Okurowski, Kelly Pidgeon, Jenelle Romig, Hollie Shubert, Lauren Sosnoski, Ryan Stuart, Neil Sullivan, Stephen Taylor, Heather Yohnke.**

B.S. Biology, Molecular Biology option: **Jonathan Busada, Tara Martines, Erica Winter.**

B.S. Biology, Pre-medical Sciences option: **Michael Busada, Patrick Casey, Kyle Correll, Elaine Daubert, Darrin Doran, Brandon Dunbar, Chardei Eshleman, Nicholas Faino, Alyssa Falco, James Kearns, Kelsey Matthews, Amanda Pulsifer, James Redinski, Amy Schultz, Derek Weicht, Melanie Yodock.**

B.S. Health Science, Clinical Lab Science: **Debon Berger, Lauren DiBernadino, Alaina Egger, Amber Kolk, Druann Welsh.**

B.S. Biology: **Michael Bierds, Michael Brabander, Laurel Downs, Shannon Grimes, Michael Hollman, Ghaith Ibrahim, Megan Kopec, Sarah Monaco, Samantha Oakes, Katrina Rohr, Elyse Ryan, Ryan Servose, Michelle Stipanovic, Tracy Stutzage.**

B.A. Biology: **Erinda Como, Michael Homishak, Heidi Huynh, Laura Laidacker, Sandra Newell, Kenneth Pallis, Lara Pebley, Kayla Riccuitti, Brittany Vaszlavik.**

B.S. Biology, Environmental Biology option: **Brennan Inch, Jamie Smith.**

B.S. Secondary Education, B.A. Biology: **Ashley Andrews, Kimberly Dash, Jenelle Petresky.**

B.S. Health Sciences, pre-physical therapy option: **Jane Armitage, Shannon Carper, Dan Copes, Hoyt Emmons, Melanie DiMartino, MaryKate Gallagher, Melissa Goff, Kelsey Harm, Amanda Kaehler, Lindsay Kupferschmidt, Matthew Maun, Katelyn Michalik, Edward Potter, Alison Reigle, Krista Reimiller, Julia Rush.**

Pre-Occupational Therapy: **Cynthia Felton, Charla Fender, Pagna Leu, Kristyn Orndorf.**

Pre-Pharmacy: **Rachel Fisher, Theresa Fuchs.**



Notice to December Grads

All students graduating in December 2010 with a B.S. or B.A. Biology degree must take the Major Field Test prior to graduation. Individuals student teaching in the spring semester should also take the Major Field Test in December. The test will be given on December 14, 1:00 to 3:00 p.m. and December 16, 1:00 to 3:00 p.m. Please schedule a time to take the exam in the BAHS Department office, 115 HSC.

Career Week Highlights

BAHS students in University Seminar recently had an opportunity to learn about various careers. Speakers included Mr. Ken Roszel, Radiologic Technology Program, Geisinger Medical Center; Mr. Brian Spezialetti, Clinical Lab Science Program, Guthrie Clinic; Mrs. Melinda Diltz, Lab Coordinator, Bloomsburg University; Ms. Donna Counterman, biology teacher, Danville High School; Ms. Stacey and Mr. Dan Grassi, pharmacists, Geisinger Medical Center; Mr. Tony Cerminaro, physical therapist; and Dr. Steven Rier, environmental biology careers, Bloomsburg University.



News from BAHS Clubs

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 right: President, **Ghaith Ibrahim**; Public Relations, **Jess Willis**; Secretary, **Amanda Fowler**; Treasurer, **Steve Paliswiat**; Adviser, **Dr. Joseph Ardizzi**; and Vice President, **Eliza Reed**. The club plans to sponsor a variety of activities this year including guest speakers, visits to professional schools, community service, and fundraisers. Check out the box for upcoming events. Everyone is invited to participate. Please contact Ghaith Ibrahim if you are interested in participating in any of the club activities (gi89990@huskies.bloomu.edu).

Pre-Medical Sciences Club Upcoming Events

Tuesday, October 26 and Wednesday, October 27,
Halloween Bake Sale, Hartline lobby.

Tuesday, October 19, Guest Speaker: Mr. David
Martin, Temple University School of Podiatric
Medicine, ABLE, 6:00 p.m.

Thursday, October 21, 178 HSC: Mr. Dylan Hurks,
A. T. Still University School of Podiatric Medicine,
11:30 a.m.; Mr. Jamie Murphy, Lake Erie College of
Osteopathic Medicine, 7:00 p.m.



Biology and Allied Health Sciences Club

The Biology and Allied Health Club welcomes all interested students to join in club activities. The club recently kicked off the year by hosting a gathering to "Meet the Professors." The Biology and Allied Health Sciences Club will be meeting the 2nd and 4th Tuesdays of each month at 7:00 p.m. in G40 HSC. Club meetings for the fall semester are October 13 and 27; November 10 and 24; and December 8. Come out to hear about fun activities planned for the year, interviewing tips for graduate schools and clinical sites, volunteer opportunities, outdoor activities, and much more! This year's club officers are: Leading the club next year are: President, **Megan Dager**; Vice-President, **Michelle Stipanovic**; Secretary, **Gina Grasso**; Treasurer, **Katrina Rohr**; Historian, **Dave Francavilla**; Public Relations, **Steven Paliswiat** and **Heather Kinney**. 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.



BAHS Club Fall 2010 Activities

Saturday, October 9, Flag Football Game, Academic Quad.

Tuesday, October 12. Research Night. Learn about research opportunities in BAHS, 7 p.m., G40 HSC.

Tuesday, October 26, Meeting, 7 p.m., G40 HSC.

First Week of November: Bake Sale, Hartline Lobby.

Saturday, Nov 6, (Tentative) Trip to the Smithsonian Institute, Washington, D.C.

Tuesday, November 9, Internship and Study Abroad Information Night, 7 p. m. G40 HSC.

Saturday, November 20. Trip to Museum of Natural History, New York City.

Tuesday, November 30, Meeting , 7 p.m. G40 HSC.

WELCOME

BAHS welcomes new faculty members to the classroom this semester:



Dr. Jennifer Venditti

BAHS is pleased to welcome **Dr. Jennifer Venditti**, a new tenure-track faculty member. Dr. Venditti hails from Berwick, PA and received her B.S. in Biology from Shippensburg University and her M.S. in Biology from Bloomsburg University. Dr. Venditti earned her Ph.D in Molecular Biology from Lehigh University, where she specialized in reproductive biology and cell biology. Her research focuses on alpha-L-fucosidase, an enzyme associated with sperm. Her goal is to learn more about the clinical significance of alpha-L-fucosidase and its potential application in the treatment of infertility. She is also interested in developing new compounds to be used as contraceptives/spermicides. Her aim is to generate compounds that successfully kill sperm without damaging the cells of the female reproductive tract. She has taught previously at Lehigh University, Penn State Lehigh Valley, and most recently at Kutztown University. At BU, Dr. Venditti is currently teaching laboratories in Concepts in Biology I and Anatomy & Physiology I. For fun, Dr. Venditti enjoys spending time with family, baking, shopping, and going to auctions. Welcome Dr. Venditti!

Ms. Donna Counterman

BAHS is delighted to welcome back Ms. Donna Counterman, who is teaching a section of Human Biology this semester. Ms. Counterman called Bloomsburg University home for six years, as she earned a BS in Secondary Education in Biology ('91), and an MS in Biology ('93). She has returned to BU previously to teach Human Biology, Zoology Laboratories, and Human Sexuality and to speak at COST Career Day. Ms. Counterman has taught biology for 18 years at Danville Area High School. When she has some spare time, she loves to garden, hike and picnic, and do pencil sketches and watercolors.



New BAHS Allied Health Coordinator

Meet **Mrs. Christine Mehlbaum**, our new Allied Health Coordinator. Mrs. Mehlbaum received her radiologic technologist training at Sacred Heart Hospital in Allentown, PA. She earned her BS degree from Bloomsburg University and her Masters in Education, Health Education from Penn State University. She previously taught and was program director of the Penn State Radiology Program. She serves as BU's Radiologist Assistant program director. Mrs. Mehlbaum replaces **Dr. Judith Kipe-Nolt** who served as Allied Health Coordinator for 10 years. Thank you Dr. Kipe-Nolt for your many years of dedicated service.

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 and **Ms. Sandy Heier**, our Allied Health Sciences and RA program secretary. Our part-time student secretaries are **Ghaith Ibrahim**, **Vanessa Tyler**, and **Scott Nacko**. **Mrs. Melinda Diltz** is our Laboratory Coordinator. Laboratory assistants are **Brandon Dunbar** and **Tye Patchama**. **Giselle Lara** is the green house assistant. **Martin Grammel** is Dr. Davis's research assistant.

BAHS Faculty Updates

New contact information for BAHS faculty and staff:

NAME	OF- FICE HSC	PHONE 389-	email@ bloomu.edu		NAME	OFFICE HSC	PHONE 389-	email@ bloomu.edu
Dr. Amin Z	138	4349	zamin		Dr. Hess	271	4126	Ahess2
Dr. Ardizzi	145	4887	jardizzi		Dr. Hranitz	268	4130	jhranitz
Ms. Beishline	116	4782	vbeishli		Dr. Kipe-Nolt	269	4319	jkipenol
Dr. Brubaker	177	4137	kbrubake		Dr. Klinger	B54	4118	tklinger
Dr. Chamuris	117	4735	gchamuri		Mrs. Mehlbaum	265	4527	cmehlbau
Dr. Corbin	173	4134	ccorbin		Dr. Melnychuk	266	4219	mmelnych
Ms. Counter- man	136	5229	dcounter		Dr. Nolt	149	4136	bnolt
Dr. Davis	272	4120	gdavis		Dr. Rier	G46	4953	srier
Mrs. Diltz	137	4888	mdiltz		Dr. Surmacz	146	4132	csurmacz
Grad Assts.	110				Dr. Venditti	264	4780	jvenditt
Dr. Hansen	270	4580	chansen		Dr. Wassmer	169	4138	gwassmer
Ms. Heier	265	5301	sheier		Dr. Williams	148	4131	Kwillia4
Dr. Henry	172	4819	khenry		Dr. Wood	147	4666	mwood

Faculty News:

- **Dr. Steven Rier** was recently appointed Associate Editor of the *Journal of the North American Benthological Society*. Dr. Rier and colleagues also published a paper in the journal *Applied Environmental Microbiology* entitled "Growth of Trees under Elevated Atmospheric CO₂ Alters Microbial Communities Colonizing Leaf Litter in a Temperate Woodland Stream."
- **Dr. Angela Hess** was invited to speak at the 2nd annual Eph/Ephrins and Cancer conference in June. The title of her presentation was "EphA2 promotes characteristics associated with an aggressive phenotype in cutaneous melanoma."
- **Dr. Gary Wassmer** was the invited speaker at a conference hosted by the Society for Research on Biological Rhythms in Destin, Florida in late May, 2010. Dr Wassmer's talk was on "The effects of altered gravitational fields on the expression and stability of circadian rhythms."
- **Dr. Kevin Williams** was elected treasurer of the Commonwealth of Pennsylvania University Biologists (CPUB). CPUB is an organization of biology faculty from institutions of the Pennsylvania State System of Higher Education. **Dr. John Hranitz** serves as Bloomsburg University's CPUB director.

Alumni Updates:

- **Jeffrey Fellman** (B.S. Biology, microbiology option, 2006) is employed at Fibrocell Science, Inc in Exton, PA as a quality control environmental monitoring associate.
- **Jennifer Kruk** (B.S. Biology, biotechnology option, 2004) earned a Ph.D. in molecular biology/biochemistry from Penn-State University. She is currently a postdoctoral fellow with the U.S. Department in the Defense Threat Reduction Agency at Fort Belvoir, VA.
- **Loren Abbott Bellows** (B.S. Clinical Lab Science, 2004) is a certified physician assistant at Guthrie Clinic's family medical practice in Troy, PA.
- **Rebecca Kinney Peterson** (B.S., Medical Imaging, 2003) is clinical coordinator for the radiological technologist education program at the Hospital of the University of Pennsylvania.
- **Scott E. Aikey** (B.S. Medical Technology, 1986) is a past-president of the American Society for Clinical Lab Science, a national professional organization dedicated to practice, education and management in clinical laboratory science.
- **Daniel Aruscavage** (M.S. Biology, 2002) earned his doctorate at Ohio State University and is currently an assistant professor in the biology department at Kutztown University.



Tri-Beta Biology Honor Society

Beta Beta Beta (Tri-Beta) is an honor society for biology students who achieve superior academic records and who display an aptitude for and interest in the life sciences. Its mission is to stimulate scholarship, to disseminate scientific knowledge, and to promote biological research. More information on Tri-Beta is available on the bulletin boards opposite 99 HSC or by checking the new chapter website: <http://orgs.bloomu.edu/betabetabeta> The chapter is currently tutoring students in introductory biology courses each Wednesday from 4 to 5 p.m. at ABLE. Last year, our local chapter hosted a reception for graduating seniors, supplied coffee and donuts during finals week, attended the College of Science and Technology Honors banquet, and provided "biology games" at the Siblings & Children's Weekend. This year's officers pictured from left to right are President, **Kyle Correll**; Historian, **Amy Schultz**; Secretary, **Amanda Kaehler**; Vice-President, **Megan Dager**; and Treasurer, **Michael Brabander**. **Dr. Surmacz** is the Tri-Beta advisor. The chapter recently sent out membership invitations to eligible juniors, seniors, and graduate students. The deadline to submit completed applications to Dr. Surmacz is Oct. 15, 2010. The Initiation Ceremony and Reception will be held on Thursday, Nov. 7 at 3 p.m. in Kuster Auditorium, in Science Center. Family and friends are invited to attend. See any officer or Dr. S for more information.



Greetings from Uruguay by Dr. Clay Corbin

In July I traveled to Punta del Este, Uruguay to present a paper at the 9th International Congress of Vertebrate Morphology (ICVM). These meetings happen only every 3 or 4 years (the next one in Barcelona, 2013) and draw scientists from all over the world interested in vertebrate morphology and evolution. I presented some of my recent research (co-authored by **Andrew Swank**, a B.S.

Biology undergraduate, and Lance McBrayer, an Associate Professor of Biology at Georgia Southern University.) The talk was titled: Linking Feeding Ecology and Head Morphology via Bite Force in Passerine Birds of Pennsylvania and Puerto Rico. Subjects of other talks were diverse. For example, within a couple of hours, one could learn about recent developments in descriptive head anatomy of extinct burrowing caecilians, forelimb adaptations of wombats, the importance of an evolutionary foundation in veterinary and medical students, morphological adaptive radiation in iguanian reptiles, and evo-devo of Darwin's Finches.

I was able to get outside a bit too and take in some of the landscape and its inhabitants. The major biome in that area is called Uruguayan Savannah, an interesting mixture gallery forest, pantanal-like swamps, and upland terrestrial habitats dominated by pampas grasses, cactus, and shrubby vegetation. That and the rocky sea-shore supports a really interesting and unique community of vertebrates. This proved to be excellent fodder for discussion among meeting participants. Some of my favorite vertebrates that I saw were molas, tegus, capybaras, sea lions, hog-nosed skunks, tinamous, Magellanic penguins, screamers, black-and-white monjitas, and Guira cuckoos. This mixture of habitats and unique organisms was analogous to a three-ring circus for a vertebrate zoologist. There was really never a boring moment in the field (then again, is there ever??). Also, one thing that I noticed about these meetings is that there seems to be an overarching scientific theme emerging in the field of Functional Morphology that of Modularity. It isn't a new idea but one that is becoming more tenable to scientific exploration. Essentially, modularity is the ability to subdivide a developing organism into smaller organizational/functional units. These functional units (e.g. somites, limb buds, etc) have a strong phylogenetic, and hence, evolutionary inertia. We are realizing that small changes in the regulation of developmental modules can profoundly impact the adult phenotype. And, in turn, under scrutiny of selection and/or biomechanical constraint, these changes can translate into morphological diversification at macroevolutionary scales. Coolest of all is that through this modularity, the history of anatomical diversification (and all of its emergent properties) can be tracked back to the earliest common ancestors. Hence, a lot of the hand-waving speculation on form and function from the likes of Aristotle, Belon, Darwin, Owen, Haeckel, etc. are being put to the test with cutting-edge developments in imaging, molecular biology, and behavioral and anatomical analysis. Ironically, the dusty old discipline of Comparative Anatomy, with all of its developmental, ecological and evolutionary facets, is actually bridging major gaps in our scientific knowledge about life on the planet. This is due to its inherent integrative and inclusive nature not shared by narrower, more anthropocentric biological disciplines. Viva la Morfologia!



BAHS Interns Gain Hands-On Experience

Internships are a great way to get on-the-job experience and earn academic credit. BAHS offers 50.490, Internship in Biology, to eligible juniors and seniors. While internships may vary from 3 – 15 credits, no more than 3 credits may be applied as biology electives. Internships may be paid employment or may be volunteer. To learn about internship opportunities and procedures, contact your academic advisor. Check out some recent BAHS internships:

Pre-Physical Therapy Internships

BAHS pre-physical therapy students headed to clinics for internships in physical therapy. **Amanda Bartosic** is serving as an intern at Starr Inc, Physical Therapy and Fitness, Marion Heights, PA. Phoenix Rehabilitation and Physical Therapy, Bloomsburg, PA, was the internship site for **Melanie DiMartino**, **Matthew Maun**, and **Michael Quintans** this summer and for **Christopher Sierotowicz** this fall semester. **Craig Kauffman** enjoyed his experience as a PT intern at Geisinger HealthSouth where he assisted in the administration of functional capacity tests. Lycoming Physical Therapy was the site of **Andrea Miller's** internship. **Mollie Erb** served as an intern at Reading Hospital at Wyomissing Plaza. PT interns have the opportunity to learn how orthopedic and neurological patients are diagnosed and treated, how specific therapeutic techniques are used to restore or improve function, how A & P are used in PT evaluations, and the professional aspects of career in physical therapy.

Pre-PA Students Gain Valuable Experience

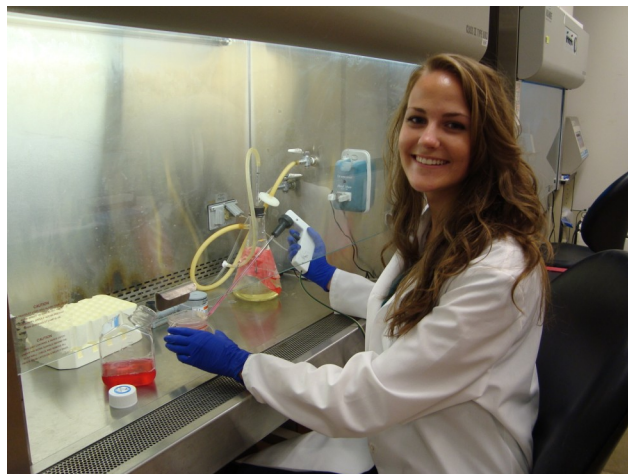
Neil Sullivan interned at Reading Hospital & Medical Center, Reading, PA, where he participated in medical rounds and rotated through the emergency department, and the intensive care and progressive care units. Bloomsburg Hospital was the internship site of **Justine Okurowski** and **Randi Mann**. Justine spent time in the Emergency Room, observed child births and surgeries, and learned phlebotomy techniques. Randi observed in the maternity department. **Joelle Bittner** conducted an internship at Parkway Neuroscience and Spine Institute a comprehensive pain management clinic in Hagerstown, MD, that specializes in spinal disorders. **Tina Nguyen** did her internship at Mastropietro and Associates Family Practice in Lancaster, PA. **Jacquelyn Koren** learned about health care delivery by observing a variety of healthcare professionals at Independent Court, an assisted living facility in Quakertown, PA. **Logan Hathaway** served as an intern at Charles Cole Memorial Hospital in Coudersport, PA, where he shadowed doctors and physician assistants in settings ranging from primary care and pediatrics, to orthopaedics and gastroenterology. All agree that these were great experiences that prepared them for their future careers as a physician assistant.

Geisinger Medical Imaging Internships

GMC Medical Imaging interns this semester are **Candice Massina** and **Amanda Worley**. They are observing multiple areas in radiography including diagnostic radiography, orthopedic radiography, fluoroscopy, nuclear medicine, sonography, and mobile radiography. Applications for two Spring 2011 internship positions will be announced later this fall.

Michelle Stipanovic (pictured at right) served as a research intern at the Weis Center for Research at Geisinger Clinic, Danville, PA. Michelle conducted research in the lab of Dr. Janet Robishaw. Her project was entitled "The role of G-protein subunit GNG11 in cellular senescence." She plans to present her research at COST Research Day at the end of the semester.

Aaron Emick interned at Lake Tobias Wildlife Park, Halifax, PA. where he served as a safari tour guide. Aaron provided visitors with information regarding the natural history of the park's bison, yaks, elks, emu, and other park residents. (Stay tuned for photos in the next issue of BioSynthesis.)



SOPHOMORES: Check out the NEW Sophomore Experiential Learning Program

BU's new **Sophomore Experiential Learning (SEL Program)** is designed to help students gain meaningful job experience and shadow a professional in their field of study. This 25-40 hour not-for-credit mentoring program provides students with opportunities to explore different options during a week-long observation. Observations will occur during Spring break, the month of June, or Winter break. The SEL Program aims to help students become familiar with new professions and job fields, to be exposed to career or industry ideas; and to begin to build a network of professional contacts. **Students must attend one of the following information sessions in order to apply to the program:**

Tuesday, October 26, Multipurpose A, Kehr Union, 10:00-10:30 a.m. and 10:30-11:00 a.m.
 Wednesday, October 27, Ballroom, Kehr Union, 10:30-11:00 a.m. and 11:00-11:30 a.m.
 Thursday, October 28, Ballroom Kehr Union, 2:30-3:00 p.m. and 3:00-3:30 p.m.



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. The committee recently hosted a meeting at ABLE in the Columbia Science and Health Science Living Learning Community Room for all students interested in the pre-medical sciences. The co-chairs of the committee are **Drs. Joseph Ardizzi** and **Mark Melnychuk** from BAHS. Other committee members include **Dr. Cindy Surmacz** (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).

Sign up for the Pre-Medical Science Option

Students who are interested in the pre-medical science option in the B.S. Biology degree can sign up at the Academic Advisement Office, 216 Student Services Center. For more information, contact your academic advisor. The pre-medical sciences curriculum sheet can be downloaded from http://departments.bloomu.edu/biology/curriculum_sheets.html

Check out these Upcoming Events

- The Philadelphia College of Osteopathic Medicine (PCOM) hosts its Annual Doctor of Osteopathic Medicine Open House on Friday, October 22, 2010 from 5:30 until 8:00 p.m. Dinner and registration are from 4:00 to 5:15 p.m. You will have the opportunity to learn about osteopathic medicine, life at medical school, osteopathic manipulative therapy, to meet PCOM students, and to tour the campus. To reserve a place, please send an email by going to www.pcom.edu by October 18, 2010.
- The Pennsylvania State University College of Medicine at Hershey invites you to its annual Primary Care Day at 9:00 a.m. on Saturday, October 23, 2010. This program provides an opportunity to learn about the primary care disciplines and practice, medical school, the application process, and student life. The attendees may also interact with medical students, primary care physicians, and faculty. Registration forms are due by October 18, 2010 and can be obtained from Dr. Ardizzi, 145 HSC or may be completed on line at <http://www.surveymonkey.com/s/MMG9FL8> For a schedule, please see one of the pre-professional advisors.
- The Pennsylvania College of Medicine Chapter of the Student National Medical Association presents MAPS Day from 8 am to 5 pm on Saturday, October 23, 2010. MAPS, short for Minority Association of PreMedical Students, aims to encourage pre-med students from diverse ethnic backgrounds to seek medical careers. MAPS Day includes opportunities to tour the medical center, meet with medical students and deans, receive advice on interviews and the application process, and to use medical instruments. For additional information see Dr. Ardizzi, 145 Hartline.

2011 MCAT Dates are Posted

The Medical College Admission Test, MCAT is a computerized exam required for admission to medical school. It 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 2011 are January 28, 29; March 26; April 9, 16 and 29; May 7, 20, 21, 28; June 16; July 6, 16, 28, 29; August 5, 6, 12, 18, 19, 23; Sept 1, 2, 8, and 10. Additional information can be found at <http://www.aamc.org/students/mcat/>

Practice MCAT!

The Pre-professional Committee will offer its annual Mock MCAT exam on **Saturday, November 20, 2010 at 9:00 a.m. in 262 HSC**. MCAT, a test developed by the American Association of Medical Colleges, is the standardized test required for medical school admission. The MCAT 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. By taking a practice MCAT you will become familiar with the depth and breadth of its questions. After receiving your "practice scores" you will get a better understanding of the content areas that require further study. The practice MCAT is recommended for sophomores, juniors, or seniors. Freshmen should probably wait until they have had more college science courses. A registration form for the practice MCAT and additional information is found on BOLT in the "Pre-Professional Community." To join this community, contact Dr. Trumbo-Bell (tbell2@bloomu.edu).

Allied Health News



Calling all MI Students applying for a 2011 clinical... Medical Imaging Application Night!



Come and learn about the process for applying for clinical experiences in medical imaging at a special workshop on Monday, October 11 from 6 to 9 p.m. in HSC 122.

BAHS MI Students visit Johns Hopkins Hospital

Mrs. Mehlbaum, allied health coordinator, led an enthusiastic group of Medical Imaging students to visit Johns Hopkins Hospital in Baltimore, Maryland last month. The students learned about clinical programs in Radiography, Nuclear Medicine, Diagnostic Medical Sonography, and Interventional Radiography/CT/MRI. Career opportunities at Johns Hopkins and the application process were also discussed. The students toured the hospital, observed various imaging modalities, and talked with current and former students. Students visiting Johns Hopkins were: **Melissa Welkom, Traci Hoon, Victoria Williamson, Jessica Albright, Jordan Shrader, Lindsay Hopkins, Caitlin McFarlane, Lindsay Kida, Daniel Wetzel, Maria DeStefano, Jacklyn Cross, Kristen Tarlecki, Dana Datillo, Brittany Levensgood.** Our driver was Graduate Assistant **Ryan Dorkoski.**



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: R, Radiologic Technology; RT, Radiation Therapy; MRI, Magnetic Resonance Imaging; CT, computerized tomography; NM, Nuclear Medicine; S, Sonography; CVT, Cardiovascular Technology; CLS, Clinical Lab Science.)

Johns Hopkins Hospital: **Maci Aumiller, Jillian Kida (S), Erica (King) Hollister (NM); Megan Filipski, Heather Monk, Michael Snyder (R/CT), Lucas Sparta (RT,MR).** College Misericordia: **Cynthia Mirra, Maura Williams (S).** University of Pennsylvania Hospital: **KCAnn Blank, Rebecca Conrad, Julie Heimbach, Jessica Lapinsky (R).** Reading Hospital and Medical Center: **Melissa Curry, Jacqueline Masser, Ashley Mattrazzo, Whitney Smith (R) and Sean Scubelek (CLS).** St. Francis Medical Center, Trenton, NJ: **Christopher Vitali (R).** St. Christopher's Hospital, Philadelphia, PA: **Priscilla Fuentes and Maria Palmieri (R).** Crozer Chester Medical Center: **Anna-Lee Pflomm (S).** Abington Memorial Hospital: **Marcy Breymier (R), Melissa Edmondson (RT).** Bucks County Community College: **Jessica Findley (R).** Lancaster General Hospital: **Kalie Behler (NM), Druann Welsh (CLS).** Christ Hospital: **Sheila Solanno (R).** Clearfield Hospital: **Kaitlyn Dombrowsk (R).** Arnot Ogden Medical Center: **Karen Wray (R).** Albert Einstein Medical Center: **Jared Elliott (R).** AnMed Health: **Ryan Ser-vose (R).** Thomas Jefferson University: **Stephanie Dufa and Rebecca Snyder (S).** Geisinger Medical Center: **Dixie Alexander, Lyndsey Bainbridge, John Blew, Ryan Cirocco, David Kolk, Douglas Kovach, Robert Medon, Amanda Mull, Sara Taylor, and Jessica Terpstra (R) and Shauna Kwiatkowski (Echo).** York Hospital: **Debon Berger and Lauren Gedman (CLS).**

Interested in Pharmacy, Occupational Therapy, or Physical Therapy?



Mr. Don Sharples, Director of Admissions, Thomas Jefferson University, College of Health Professions, will visit on Wednesday, October 18 at 7:00 p.m. in G42 Hartline. Students will have the opportunity to learn about Thomas Jefferson University; their programs in pharmacy, occupational therapy, and physical therapy; admission policies; and application procedures. We hope to see you there!

Student Researchers

The research labs in Hartline are certainly busy this semester! The following students are working on research projects either as part of Research in Biology I or II, Honors Independent Study I or II, or as volunteers to gain valuable experience. We look forward to learning the results of their studies at various local or state meetings.

Kimberly Ochal (B.S. Biology, environmental biology) wrapped up her undergraduate career this past summer working on a research project with Drs. Hallen (Chemistry), Venn (Geography Geosciences), and **Rier** looking at water chemistry patterns in the Susquehanna River.

Ghaith Ibrahim (B.S. Biology) is conducting the second half of an independent research project in **Dr. Hess's lab** where he is investigating the expression of EphB4 and its ligand ephrin-B2 between poorly aggressive and highly aggressive human melanoma cells. He will then investigate the functional significance of this receptor/ligand pair in mediating melanoma vasculogenic mimicry.

Michael Busada (B.S. Biology, pre-medical sciences) is volunteering in **Dr. Hess's lab** this semester. He is working on establishing a 96-well MTT assay to measure cellular proliferation in melanoma tumor cells.

Brandon Dunbar (B.S. Biology, pre-medical sciences) is conducting an honors independent research project this academic year with **Dr. Nolt**. He will be investigating the ability of compost amendments to suppress the pathogenicity of the soil borne fungus *Pythium splendens* in infested greenhouse soils. This semester he will be busy preparing the inoculum, calibrating inoculum dose, and developing a bioassay method. Next semester, he will test suppressive composts under greenhouse conditions at Dillon Floral.

Megan Dager (B.S. Health Sciences, pre-physician assistant) is examining the response of heat shock proteins in aquatic worms exposed to heat stress. Since previous studies in the lab have suggested that heat shock proteins may be degraded during the homogenization procedure, Megan is currently exploring the effects of adding protease inhibitors. **Drs. Surmacz** and **Hranitz** are her mentors.

Meghan Duell (B.S. Biology) is conducting laboratory research in **Dr. Hranitz's lab** on samples she collected as part of her Honor's Program research project. Field work started in Turkey and Greece (summer 2010) for seven weeks. Back in PA, she is studying the stress response of honey bees to sublethal doses of a pesticide often used to control mites in apiaries. The question she is attempting to answer is whether or not sublethal doses of the pesticide produce a significant stress response in adult bees.

For Research in Biology 1 in spring 2010, **Paige Ricci** (B.S. Biology, molecular biology option) worked in **Dr. Hranitz's lab** to screen cross-species efficacy of microsatellite primers in an invasive leafcutting bee. She found that five of six primer sets amplified homologous microsatellite loci in the leafcutting bee. The objective of her Research in Biology 2 project is to compare microsatellite genotypes among bee samples she collected in 2009 from Greece and Turkey to those that **Amy Savitski** (B.A. Biology, 2008) collected in Greece and California in 2007.

Nicole Gerard (B.A. Biology, natural history option) compared the male advertisement calls of Fowler's toads on three barrier islands to three mainland sites on the Eastern Shore of Virginia. She worked with **Dr. Hranitz** and **Ben Evancho** to make field recordings of calling male toads. She worked with Dr. Klinger to analyze call characteristics measured using sound analysis software. She recently presented her findings to a group of scientists at the Open House for the Marine Science Center in Wallops Island, VA.

Kyle Lewis (B.S. Biology) worked with **Dr. Henry** over the summer to examine the effect of histone modifications on multidrug resistance (MDR) efflux pumps in the pathogenic yeast *Candida glabrata*. The covalent modification of histone proteins has been known for some time to regulate the expression of a variety of genes in eukaryotic cells (including humans). Dr. Henry's research focuses on how opportunistic fungal pathogens use these modifications to regulate the expression of ATP-dependent cellular pumps to develop resistance to antifungal agents by pumping the drugs out of the cell so that the intracellular drug concentration is very low even when extracellular concentrations are high. Kyle performed antifungal susceptibility testing in several strains of *C. glabrata* in which the genes for several histone modifying enzymes (HME) had been deleted. He found that the loss of HME that are responsible for histone acetylation and ubiquitylation results in increased sensitivity to several different antifungal drugs. Further testing showed that these same strains also showed decreased ability to upregulate the expression of genes that encode MDR efflux pumps. To show that these problems in MDR gene expression show a specific functional defect, Kyle learned how to use rhodamine 6G, a fluorescent molecule that has been shown to be a substrate for MDR efflux pumps in the model yeast *Saccharomyces cerevisiae*, to show that decreased gene expression correlated with decreased efflux capacity.

Reuse, Reduce and Recycle – with caution

St. Columba (Bloomsburg, PA) student Alison Moore spent several weeks this summer working with **Dr. Karl Henry** to evaluate the safety of reusing plastic water bottles. While refilling plastic water bottles after their first use can seem like a good way of having water “on-the-go” and reducing your carbon footprint, but it may not be safe to do over extended periods of time. With each use, there is a chance of contaminating the bottle with microorganisms that are normally found on our skin and mouth but there is also the chance that potentially pathogenic microbes that can be found in the environment may also get into the bottle over time. Washing or disinfecting the bottles after each use can decrease the risk of carrying over microbes with each use but this is not commonly done with these “disposable” water bottles. Alison, pictured at right, decided to investigate the potential risk of reusing these bottles for her 8th grade Science Fair project.

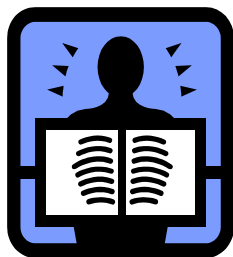


In the experiment, Alison and her family used the same 20 ounce plastic water bottles for one week. Each person had to drink and refill the bottle three times each day. Each afternoon, Alison used sterile tubes to collect a water sample from each bottle which were then processed to determine if there were any microorganisms present in the samples. Samples from several previously unopened water bottles as well as the filtered tap water used to refill the bottles were also tested as controls.

Alison found that within two days (six refills), microbial contamination could be detected in the water bottles. While many of the microorganisms that were found in the water samples are also commonly associated with the normal flora of the skin and mouth, coliform bacteria were detected in some of the bottles by the fifth day. Additional testing of the coliform bacteria was performed in order to identify the specific microorganisms that were present in the samples.

Alison examines culture tubes for the presence of coliform bacteria in her water samples in the above photo. She presented all of her results as part of the Science Fair exhibit in the Education Building at the recent Bloomsburg Fair.

RA PROGRAM STUDENT NEWS



Current Radiologist Assistant students started clinical this semester: **Jeffrey Smith**, University Hospital, Cincinnati and Cincinnati Children’s Hospital and Medical Center, and the VA Healthcare System of Ohio; **Evans Nkowa**, UPMC Presbyterian, Pittsburgh, PA; **Jina Jung**, Sinai Hospital, Baltimore, MD; **Mary Streeter**, Fletcher Allen Health Care Center, University of Vermont; **Chrissy Win**, MetroHealth, Cleveland, OH. **Kourtney Saba** took the semester off to have a baby girl due late November. Taking classes this fall are **Heidi Streeter**, Fletcher Allen Health Care Center, University of Vermont and **Thomas Outlaw**, Stroudsburg, PA.

Spring Biology Electives



Here’s a “heads up” on the BAHS biology/health science elective offerings for Spring Semester: Introduction to Nutrition (**Dr. Melnychuk**); Invertebrate Zoology (**Dr. Klinger**); Writing in Biology (**Dr. Ardizzi**); Molecular Biology (**Dr. Davis**); Medical Microbiology (**Dr. Henry**); Global Change Biology (**Dr. Rier**); Developmental Biology (**Dr. Hansen**); Virology (**Dr. Nolt**); Advanced Immunology (**Dr. Brubaker**); Animal Cell Physiology (**Dr. Hess**); Neurophysiology (**Dr. Wassmer**); Plant Physiology (**Dr. Williams**); Comparative Animal Physiology (**Dr. Hansen**).

IMPORTANT ANNOUNCEMENT: A new 3 credit Medical Terminology class for health science majors will be offered spring semester 2011. This replaces the 1 credit Medical Terminology course. The 3-credit course does not yet appear on the scheduling website yet. Stay tuned!



Graduate Program Updates

M.S. BIOLOGY STUDENT NEWS

- Please welcome our new graduate students **Andrew Ackerman, Jonathan Busada, Ryan Dorkoskie, Megan Kopec, Lauren Lowenberger, Tye Patchana, Diana Pierce, Anna Simpson** and **Tagreed Zagzoog**. Lauren is a graduate of Lock Haven University and Tye comes to us from Wilkes University. Tagreed has a full academic scholarship from King Abdulaziz University in Saudi Arabia. Andrew, Jon, Ryan, Megan, Diana, and Anna are BU graduates.
- Our Graduate Assistants this semester are **Jonathan Bobak** (A & P Laboratories), **Ryan Dorkoskie** (Cell Biology/Integrated Physiology Laboratories), and **Lauren Lowenberger** (Concepts in Biology I Laboratory). **Tye Patchana** is assisting in the microbiology labs. Welcome aboard!

Graduate Student Research Updates:

- **Jon Busada** is investigating how the addition of ephrin-A1, the ligand for EphA2, affects melanoma cell migration and vasculogenic mimicry. Jon received a research grant from the Pennsylvania Academy of Sciences to fund his masters research project titled "High levels of EphA2 expression correlates with increased migration in human cutaneous melanoma." **Dr. Hess** is his research mentor.
- **Diana Pierce** is working on analyzing the expression levels of EphA1, EphA3, EphB2, EphB3, ephrin-B1, and ephrin-B3 in normal human keratinocytes compared to normal human melanocytes. Once an expression profile of these receptor tyrosine kinases and their ligands has been determine, Diana will investigate the changes that occur during melanoma progression to a metastatic phenotype. **Dr. Hess** is her research mentor.
- **Bernard Svab** (photo on left) successfully defended his Master's thesis entitled "Effects of Intermittent acid mine drainage on



nutrient cycling in a northeastern Pennsylvania stream." Bernie is a high school biology teacher in the Wilkes-Barre area. **Dr. Rier** is his research mentor.

- **John Shirvinski** (photo second from left) completed the field work on his Master's project this summer looking at the enzymatic response of stream microbial communities to phosphorus, light, and external dissolved organic carbon inputs. John is a high school biology teacher in Mahanoy City. **Dr. Rier** is his research mentor.
- **Jonathan Bobek** (photo third from left) is investigating the genetic basis of foraging behavior in honey bees. In Turkey, he conducted behavioral trials to measure foraging behavior in honey bees and classify individual bees according to their natural preference. Bees were frozen and mailed back to the USA. Jon is now performing brain dissections in preparation for genetic analyses. **Dr. Hranitz** is Jon's research mentor.
- **Ben Evancho** (photo fourth from left) compared the morphology of adult Fowler's toads from three Atlantic Coast barrier islands to three mainland populations. He worked with **Dr. Hranitz** and **Nicole Gerard** to catch adult toads in March through May and test the hypothesis that island dwarfism is repeated on barrier islands of the Eastern Shore of Virginia. Studies in the summer compared the size of post-metamorphic toads to determine if, as suggested in previous studies, island-mainland size differences are established with in the first growing season after metamorphosis. Ben is currently working to determine the ages of toads from each population to learn if the age structure of the island and mainland populations are different.

Interested in the master's degree program in biology? Please direct questions to **Dr. Kristen Brubaker**, BAHS graduate coordinator (kbrubake@bloomu.edu).

Need Help in your Introductory Biology Course?

Tutoring sessions are offered by Tri-Beta Honor Society each Wednesday at ABLE, first floor Columbia, each Wednesday from 4 p.m. to 5 p.m. Students in Anatomy and Physiology; Concepts in Biology; Human Biology; Cells, Genes, and Molecules; and Ecology and Evolution are welcome to drop in.