



BioSynthesis

Volume 7 Issue 1 (Feb 2008)

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

Spring Semester Dates

MAR 1: COST Symposium

MAR 3: MCAT Review Session, 5 p.m., 178 HSC

MAR 4: Pre-Medical Sciences Club Meeting, 5 p.m., 178 HSC

MAR 10—18: Spring Break

MAR 20: Tri-Beta Bake Sale, HSC Lobby

MAR 28: Medical Imaging Internship Applications due to Dr. Hranitz.

MAR 29: CPUB Meeting, Shipensburg University

MAR 31: COST Honors Banquet, 6 p.m., KUB Ballroom

APR 1: An Evening with Maeve Leakey, 7 p.m., Haas

APR 4—6: Pennsylvania Academy of Sciences Meeting, Harrisburg

APR 10 - 11: Health Sciences Symposium, KUB

APR 17: The Summer Sun: The Good, the Bad, and the Ugly, Dr. Hess, 7 p.m. Columbia Hall, Living Learning Community.

APR 25: Relay for Life

APR 26 and MAY 1: Biology Field Test for Seniors



Look what's inside:

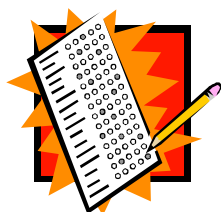
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2008 Health Sciences Symposium to Focus on Aging



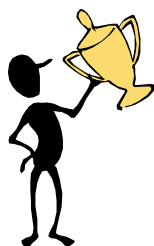
Bloomsburg University will host the 17th annual Health Sciences Symposium on April 10 and 11, 2008 at Kehr Union. “Aging with Grace” is the theme of this year’s symposium and will feature keynote speaker, Dr. David A. Snowdon. Dr. Snowdon is an epidemiologist and a leading expert on aging and Alzheimer’s Disease. He is a professor in the Department of Neurology in the College of Medicine and Sanders-Brown Center on Aging at the University of Kentucky. Dr. Snowdon holds a Ph.D. in Epidemiology from the University of Minnesota. He is the director of the “Nun Study,” a longitudinal study of aging and Alzheimer’s Disease begun in 1986 that involved 678 Roman Catholic nuns of the School Sisters of Notre Dame. The nuns, ranging in age from 74 to 106, are an ideal study population since they live a similar lifestyle. Findings from the Nun Study have provided us with practical knowledge on aging and an understanding of factors that predict Alzheimer’s Disease. The results of this research study have been published in several scientific journals including the *Journal of the American Medical Association*, *American Journal of Epidemiology*, and the *Journal of American Geriatrics*. Dr. Snowdon’s findings have been featured on television programs such as *NBC’s Today Show*, *ABC’s Nightline*, *CNN*, and the evening news of all three major networks and in print in *The National Geographic*, *TIME*, *Newsweek*, and major newspapers across the country. In 2001, Dr. Snowdon published a book on the study entitled, *Aging with Grace*. He hopes that the lessons learned from the Nun Study will help us all lead long, healthy, meaningful, and productive lives.

The keynote address “Aging with Grace: Findings from the Nun Study” will be held on Thursday, April 10 at 7:00 p.m. in Kehr Union Ballroom. Dr. Snowdon will also present a workshop “Healthy Aging: Dying Young as Late as Possible” on Friday, April 11, 2008 at 8:45 a.m. in Kehr Union Ballroom. The Health Sciences Symposium will also feature presentations and posters by students and faculty in biological and allied health sciences, audiology and speech pathology, exercise science, and nursing. The Symposium is held in conjunction with the annual Wellness Fair. Highlighting the Wellness Fair are exhibits on health-related topics, healthy foods, and free health screenings and information. Mark your calendars! Everyone is welcome to attend. We hope to see you there.



Attention Graduating Seniors

Students graduating with a BS or a BA in Biology in May or August must take the ETS Major Field Test in Biology. Sign up at the department office to take the test on Saturday, 26 April, 1:00-3:00 PM or Thursday, 1 May, 1:00-3:00 PM (one of the study days before finals). Contact Dr. Wood if you have any questions.



Salute to Academic Achievement

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 Fall Semester 2007.

Great job!

Medical Imaging

Amanda Addis
Jillian Anthony
Maci Aumiller
Lindsay Cartin
Matthew Fickinger
Lynn Gera
Elyssa Goldstein
Grace Goode
Rashel Hagmayer
Elizabeth Heim
Jacob Hiller
Cory Hoffman
Jillian Kida
Rhyann Kleiner
Jennifer Kubilus
Erin Linkoski
Christine Lucasti
Kaitlyn Manley
Rose Novinger
Amanda Peterman
Grant Poppenwimer
Jenna Ruppert
Nicole Seward
Justin Singer
Kristina Slabonick
Laura Stanko
Susan Wade
Taylor Washburn
Amanda Worsham

Pre-pharmacy

Christopher Ellis
Samantha McAteer

B.A. Biology

Erinda Como, criminal justice minor

B.A. Biology, Pre-physical Therapy

Joelle Bittner
Justin Blessing
Erin Deck
Kimberly Dodson
David Francavilla
Allison Grimm
Amanda Kaehler
Justin Lavo
Danielle Page
John Pavese
Krista Petruskevich
Kelly Pidgeon
Kenneth Thomas
Danielle Yoder

B.A. Biology Pre-physician Assistant

Joelle Bittner
Timothy Faust
Ashley Erdman
Erica Kocher

B.S. Clinical Lab Sciences

Debon Berger
Lauren Gedman
Cynthia Kurtek
Casey Massimini
Jenna Peters
Sean Scubelek

B.S. Biology

Andrew Ackerman, pre-medical sciences
Emily Barkanic
Kyle Bartol, pre-medical sciences
Michael Bierds
Nicholas Bixler, chemistry minor
Richard Carter IV, chemistry minor
Travis Castleberry, pre-medical sciences, chemistry minor
Kyle Correll, pre-medical sciences
Ryan Dorkoski, pre-medical sciences
Chardei Eshleman, pre-medical sciences
Jared Geissinger, chemistry minor
Chad Gensemer
Jacquelyn Hazard
Aubrey Jones
Katie Klucharich
Allison Kunkelman
Bradley Loss, microbiology
Devon Lyons
Jared May
Amanda Meholchick
Sandra Newell
James Noll, pre-medical sciences
Jamillah Patton
Brandon Petrone
Allen Petros, pre-medical sciences
Essie Reed
Amy Schultz, pre-medical sciences
Stephanie Simpson
Philip Sobolesky, chemistry minor
Michelle Stipanovic, pre-medical sciences
Arifah Uqdah
Broc Wenrich, pre-medical sciences

Pre-occupational Therapy

Brittany Conrad
Grace Crispell
Stephanie Fowler

ALL ABOUT INTERNSHIPS by Dr. Margaret Till

What is an internship?

Internships are defined as supervised practical training for an advanced student or recent graduate; 50.490 Internship in Biology and Allied Health Science is described as a work-study program open only to juniors and seniors majoring in biology or allied health sciences. It may count for 3 to 15 credit hours (however, only 3 hours may count as biology elective credits).

Why do an internship?

Internships can make a positive difference in your job application or in your application to graduate school. For biology majors internships can help you select the particular area in which you would like to work. Biology majors may work in a government facility, a commercial laboratory, a research laboratory, a park, or a zoo. For allied health majors, an internship can be a major positive factor in their gaining admission to the graduate health professional program of their choice or to the clinical program of their choice. Interning allied health majors generally do not work directly with patients due to liability issues; their internships are more likely to be extensive shadowing experiences. As well as benefiting you after you leave Bloomsburg, an internship can contribute to your graduation; the internship course may count for 3 credits of biology electives. Internship credits beyond these 3 may count as free electives. (Keep in mind however, that for each credit you, the student, must have 40 hours of on-site experience.)

How do you set up an internship?

Planning an internship should begin early in the semester before the internship is to be scheduled. In other words, you need to begin now if you would like to have a summer internship. Your first step should be to talk with your academic advisor to determine if an internship could benefit you. Next you should find out if Bloomsburg University has an affiliation with the facility where you wish to intern. **You may only intern at a facility with which the University has a legal affiliation.** This is to protect you, the facility, and the University. To check-out the facilities with which the University already has affiliations, go to the webpage for Academic Internships (BU homepage, click Current Students, click Academic Affairs, click Registrar's Office, click Current Students, click Internships or <http://departments.bloomu.edu/internship/>. On the left side of the page, click on Active Affiliation Agreement Sites. Check the list by organization name to learn which organizations and where they are located. Many of the sites are medically related.

If the type of internship, the locale, or facility where you would like to intern is not on the list, pursue finding an internship yourself. Once you identify a site, talk with personnel at the facility; many facilities have a designated person to handle setting up internships. Determine if the facility accepts interns, what they expect of an intern, and if they would be willing to have you as an intern. If this sounds like an experience that could help you, get the name of the person the University should contact and their information (facility name, person's name, address, and telephone numbers). Your internship advisor should e-mail this information (contact's name, facility name, address, and phone number) and the course number for the internship (50.490) to Ms Elaine Parker in the Registrar's Office. Medical facilities take the longest to agree to affiliation terms; therefore you need to submit this information as early as possible. Of course, if the University has an affiliation with your proposed site, this is not necessary; it has already taken place. Once Ms Parker is able to complete an affiliation agreement with the site, she will notify your advisor and you can submit your #509 Internship form and proposal. The internship proposal and form should be completed in consultation with your internship advisor. Although your academic advisor may serve as your internship advisor, sometimes another faculty member is better suited, possibly because of prior knowledge about working with the facility.

What is an internship proposal?

The internship proposal needs to show the relationship of your proposed internship to biology or allied health and show that you will be developing skills and knowledge in biology or allied health. Further the proposal should outline the work planned and learning objectives and have a detailed written plan for evaluating the internship. The proposal must also include a letter from your proposed on-site supervisor to whom you will report during the internship. Your internship advisor submits the 509 form, the proposal, and the letter to the biology chairperson.

How am I evaluated in an internship?

Each internship may have different requirements as agreed upon by you and your internship advisor. However, all must include the following: 1) a detailed evaluation of your performance by the on-site supervisor (departmental form); 2) on-site evaluation by the internship advisor (when possible); 3) a daily journal with content that reflects fulfillment of designated objectives for the internship (work time, activities, observations, skills learned, opinions, etc.); and 4) a **final comprehensive paper** which summarizes the daily journal and relates it to knowledge and skills learned in biology or allied health programs; other content may be included as specified by the internship advisor.

HAPPY INTERNING! *Thank you to Ms. Elaine Parker, Registrar's Office, for her contributions to this article.*



Pre-professional Committee News

OPPORTUNITIES

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL AND SCHOOL OF DENTISTRY

The University of Michigan Medical School and School of Dentistry are having a Profile for Success Program for students from disadvantaged and under-represented backgrounds. This program is an intensive six-week enrichment and skills-building summer residential program for juniors, seniors, and recent graduates. Participants prepare for the MCAT or DAT in structured classes or facilitated study groups and are exposed to research, careers in education, and career specialties. The components aim to prepare students to navigate the admissions process successfully, with activities including mock interviews, personal essay writing, and application service workshops. All participants are housed on campus and receive a partial travel allowance and a stipend for meals. The application deadline is March 7, 2008. For additional information and applications, go to the following website: www.med.umich.edu/medschool/diversity/pfs.html

UNIVERSITY OF ALABAMA AT BIRMINGHAM: SUMMER BIOMEDICAL RESEARCH

The University of Alabama at Birmingham is sponsoring an eight-week program for selected undergraduates to conduct laboratory research under the guidance of individual UAB faculty members. Students will also have the opportunity to shadow a physician-scientist during daily clinical work. Recipients of the competitive fellowship will receive a stipend of \$2,000 and receive free campus housing. The program runs from June 2 to 25, 2008. The applicants should have completed sophomore year and have a science grade point average above 3.00. Previous research experience is not required. For more information and an application, go to <http://www.uab.edu/sibs>. The application deadline is March 14, 2008.

MCAT UPDATES

The MCAT is a standardized exam required for admission to allopathic, osteopathic, and some veterinary schools. The MCAT exam is now computerized and is administered 22 times per year with your choice of a morning or afternoon testing session. Registration is now open for test dates in June, July, August, and September. You are encouraged to register 60 days or more in advance in order to secure your first choice of test date. Please remember to register for the exam in the exact name that appears on your identification card. New practice tests have been posted at the MCAT Website; these more closely approximate the actual test-day experience. For more information or to register go to <http://www.aamc.org/students/mcat/>. The Pre-Medical Sciences Club sponsors bi-weekly MCAT review sessions. For more information contact **Kyle Bartol** at kdbartol@bloomu.edu

JAN PLAN REPORT

Geisinger Medical Center's Jan Plan brings students into the hospital for an intensive 9-day experience that provides a first hand look at the medical profession. Jan Plan students have the opportunity to interact with medical students, residents, and physicians during rounds, case study discussions, and observations. Participating in Jan Plan this year were biology majors **Kyle Bartol** and **Maggie Yesalavage**. Among the medical specialties that Kyle and Maggie observed were Adult Intensive Care, Pediatrics, Neurosurgery, Cardio-Thoracic Surgery, Dermatology, Pediatric Surgery, Obstetrics and Gynecology, General Internal Medicine, Hematology/Oncology clinic, and Emergency Medicine. Both students had the opportunity to observe several surgeries and interact directly with medical professionals. Maggie found the Jan Plan experience to be extremely valuable. She reports that "not only do you learn about being in the medical profession, but you learn about the entire medical school experience, including the application process and the MCATs. I learned about different kinds of medical schools, what happens in medical school, residencies, and board exams. I had time to talk to medical students, residents, and attending doctors one on one about their experiences and this really helped me get on track with what I need to start doing now in order to be a successful medical school applicant and student." Kyle's favorite part of the Jan Plan program "besides getting to observe all of the surgeries, would be getting to sit down at lunch and discussing different topics with the physicians. I learned a lot about how their lives are affected from being a doctor and how they balance their personal life and professional life." Both Maggie and Kyle report that the experience reinforced their desire to become physicians. Maggie sums it up well when she states "If you are ever given the chance to do Jan plan, DO IT!"

Check out the Pre-Pro/Pre-Grad Community

Dr. Bell, Chemistry Department, has set up an online community on Blackboard to assist students interested in attending professional or graduate school. The site contains exam study aids, helpful links, a discussion board, announcements, and a "word of the week" to build that ever important vocabulary for standardized tests. For more information, see Dr. Bell.



BAHS has Rising Stars!

Three BAHS students were recently featured as rising stars on the BU website. Congratulations to all. We are proud of you!



Yveny Eustache is a junior majoring in biology, pre-medicine option, and pursuing minors in English, Women's Studies, and Spanish. Yveny is interested in obstetrics and gynecology and plans to open clinics overseas, most likely in Haiti, her parents' homeland. Yveny is active in campus and community activities. She is a Community Assistant, a DASL mentor, and an active member of the Black Cultural Society and the Diversity Living Learning Community. Yveny is vice-president of the Gospel Choir and treasurer of the Pre-Medical Sciences Club.



Emily Kinkead, is a junior with a double major in Biology and Political Science. Emily is conducting a research project in which she is comparing barnacle species from two buoys in the Pacific Ocean. Emily is president of Democracy Matters, a campus organization dedicated to encouraging students to become politically active and to vote. Emily is also a member of BU's Forensics Team. She recently placed sixth in Extemporaneous Speaking and Dramatic Duo at the Collegiate Forensics Association Winter Weekend Speech Tournament in Montreal, Canada.



Sherrol Browne, a junior biology major in the pre-medical sciences option, is from Antigua. He is a graduate of Antigua State College. Sherrol is very active on campus. He is currently serving as president of the Gospel Choir. He is a Community Assistant and a member of the International Students Association. Sherrol was a member of the Homecoming Court last fall. He is a member of the Pre-Medical Sciences Club. Sherrol plans to attend medical school and specialize in oncology in a third-world country.

BAHS Scholar Athletes Recognized

Five BAHS students were among those honored at the recent Scholar-Athlete Luncheon for their excellence on the field, in the pool, on the track, and in the class room. Congratulations to **Michael Bierds**, a biology major and a member of the swim team; **Casey Massimini**, a clinical lab science major and softball team member; **Sandra Newell**, biology major and track team member; **James Sweeting**, a biology major in the pre-medicine option and member of the football team; and **Susan Wade**, a Medical Imaging major and member of both the track and soccer teams. Congratulations to all our scholar-athletes!



Call for Salamander Wranglers - Spring 2008

Did your mother tell you nothing would ever come of playing in mud puddles? Now you can prove her wrong! Playing in mud puddles is precisely the type of prior experience required for this job. Chelsea Barnes (who thinks nothing of jumping into puddles, streams, ponds, and more), our graduate student working on stream salamanders, needs field assistants to collect stream and bank salamanders as part of her thesis research. She has a narrow window of opportunity to collect field data this spring (March – April) and a few volunteer field biologists would be just the extra help she needs to get the data collected. Chelsea will provide guidance on data collection in the field, only a willingness to learn is required. Contact Chelsea cmbarnes@bloomu.edu or Dr. Hranitz (jhranitz@bloomu.edu) if you are interested in helping. Hours are flexible. This would be a great experience (salamander wrangler) to place on your resume! Head'em up, move'em out...

News from BAHS Organizations



Tri-Beta

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. Members of Tri-Beta met recently to discuss upcoming events and to receive their membership materials. Tri-Beta members are invited to the Annual Honors Banquet hosted by the College of Science and Technology on Monday, March 31, 2008. Members are asked to RSVP directly to the Dean's Office (HSC 176 or 384-5333). The annual Tri-Beta convention is March 29 at Mt. St. Mary's College in Maryland. The event will feature undergraduate research presentations and provides an opportunity to meet with Tri-Beta members from throughout the region. If you would like to attend, please see Dr. Surmacz. Tri-Beta sponsors weekly tutoring sessions for students in introductory biology courses each Monday at 5 p.m. in 72 Hartline Science Center. The society plans to host an event in April

for BAHS students and faculty to meet with alumni to hear about life after Bloom. Also planned is a bake sale fundraiser on March 20. The Society will also sponsor a reception for all graduating seniors and free coffee and donuts during finals week. The next Tri-Beta meeting will be after Spring Break to discuss future activities and elect next year's officers. Current Tri-Beta officers are: President, **Travis Castleberry**; Vice-President, **Kim Dodson**; Secretary, **Jennifer Krott**; Treasurer, **Jared Geissinger**, Historian, **Allison Grimm**; Advisor, **Dr. Surmacz**.

BAHS Club

The Biology Club is having a busy and fun semester! The group recently conducted a fundraiser in the halls of Hartline—we hope you purchased some baked goods and plants for your special Valentine! The club also had a Movie Night recently where the film *Flock of Dodos* on the creationism/evolution controversy was aired. The group headed to Baltimore on February 23 to visit the Body Worlds Exhibit and the National Aquarium. The upcoming schedule of events is:

February 25 - Dr. Henry will speak to the club, 7 p.m. in HSC 142

March 3 - Fun activity TBD

March 17 - Medical Professionals from Geisinger

March 24 - More fun, Activity TBD

March 31 - Speaker from Audiology, 7 p.m. in HSC 142

For more information on BAHS club activities, please see President, **Debbie Hunsberger**; Vice-President: **Nicholas Bixler**; Secretary, **Melissa Scubelek**; Activities Coordinator, **Jillian Anthony**; and Treasurer, **Erin Buckwalter**. Club advisors are **Drs. Hranitz, Brubaker, and Corbin**.



Pre-Medical Sciences Club

The Pre-medical Sciences Club is having a busy semester. The group recently held a Valentine's Day fundraiser in the halls of Hartline, complete with fuzzy critters! The group meets every other Tuesday at 5 p.m. in 178 Hartline. The next meeting is Tuesday, March 4. Nominations for officers will be taken at that time. The club is also contacting CGA for funding for trips for next year. The next MCAT review

session is Monday, March 3 at 5 p.m. in 178 Hartline. Sessions will continue every other Monday. For more information on the MCAT review, contact **Kyle Bartol** at kdbartol@bloomu.edu. The Pre-medical Sciences Club is preparing an exhibit on melanoma for the Wellness Fair on April 11, 2008. The club is also organizing a team for Relay for Life beginning on Friday, April 25, 2008. For more information, contact **Eileen Burkett** (eyburket@bloomu.edu). The Pre-medical Sciences Club welcomes all students who are interested in any of the medical sciences (allopathic or osteopathic medicine, dentistry, optometry, podiatry, veterinary medicine, etc.) Please come and attend a meeting. Serving as officers this year are: President, **Nick Bixler**; Vice President, **Pam Hudock**; Secretary, **Kyle Bartol**; Treasurer, **Yveny Eustache**; and Public Relations, **Eileen Burkett**. **Dr. Ardizzi** is the club advisor.

BU hosts Science and Tech Symposium



Bloomsburg University will host its annual Science and Technology Symposium on Saturday, March 1, 2008. This program provides an opportunity for high school seniors who are interested in BU's College of Science and Technology to visit campus and meet with faculty and students. BAHS welcomes students and their families who have expressed interest in majoring in our academic programs. The day includes a welcome and introductory session, a tour of department labs, hands-on demonstrations, and meetings with academic advisors to learn about our various curricula in biology and allied health sciences. If you are interested in helping welcome prospective students and their families, please see **Dr. Wood**.



Allied Health Updates

Important Notice for Medical Imaging and Clinical Lab Science Majors



Medical Imaging and Clinical Lab Science students who have applied to clinical programs this year should see Dr. Kipe -Nolt after spring break. If you have been accepted and made a decision regarding a clinical site, bring the following along with you: curriculum sheet filled out (in pencil) with all the courses you have taken and grades earned; clinical site; clinical director's name and contact information (phone and e-mail); and starting and ending dates for the program.

Allied Health Students Gain Experience

Ellie Daniels and **Megan Patzuk** are medical imaging interns at Geisinger Medical Center (GMC, Danville, PA). They are each mentored by **Dr. Hranitz** and are being supervised by Mr. Kenneth Roszel in the Radiology Department at GMC. **Janelle Bickle** is enrolled as a medical imaging intern in sonography at Wyoming Valley Medical Center. **Dr. Kipe-Nolt** is her mentor. Interns have the opportunity to observe different medical imaging modalities and to understand the role of the medical imager in the healthcare team.



MI Internships for Summer and Fall 2008



BAHS will offer medical imaging internships at Geisinger Medical Center in the Summer 2008 and the Fall 2008 semesters. Students enroll in a three-credit internship that applies toward the Science Emphasis of the B.S. in Medical Imaging degree. Applicants should have completed Concepts in Biology I and Anatomy & Physiology I by the start of the internship. Internship applications can be obtained from Dr. Hranitz, 131 HSC. Applications require a 250-word career essay and are due to **Dr. Hranitz** by 4 p.m. on March 28, 2008.

Come and learn about Skin Cancer

The Science and Health Sciences Living-Learning Community will host a presentation by **Dr. Angela Hess** on "The Summer Sun: The Good, The Bad, and The Ugly." All are welcome on April 17, 2008 at 7:00 p.m. in Columbia Hall.



Upcoming Speakers



Dr. Conrad Quintyn, Department of Anthropology, has invited two Pennsylvania State Police detectives from the Criminal Investigation Assessment Unit to discuss some of their "cold cases." The talk, entitled "The Cold Case Detectives: Pennsylvania State Police Criminal Investigative Assessment Unit" will be presented on February 26, 2008 from 4 to 5:15 p.m. in 170 Centennial. All are welcome.

Noted paleoanthropologist Dr. Maeve Leakey will be coming to campus as part of the Provost's Lecture Series. Her talk, entitled "My Life in Science: An Evening with Maeve Leakey" will be held on April 1 at 7 p.m. in Haas Auditorium. Dr. Leakey's visit is hosted by the anthropology department. Admission is free and open to the public.

Share your good news!

Have you been accepted to a graduate or professional school or clinical program? Have you decided where you will attend next year? Do you have a cool summer experience in biology or health science lined up? Please send **Dr. Surmacz** an e-mail message (csurmacz@bloomu.edu) with your final plans for inclusion in the next issue of *BioSynthesis*.



What are you doing this summer?



BAHS Summer College Offerings

The following courses will be offered by BAHS during summer 2008:

Session I: Human Biology (Dr. Melnychuk); Anatomy & Physiology I (Drs. Surmacz & Corbin); Intro. Microbiology (Dr. Kipe-Nolt), Human Sexuality, Field Botany (Dr. Williams); Current Topics in Biology (Dr. Chamuris); Research Methods (Dr. Hranitz); Radiology Procedures & Image Evaluation II (Mrs. Mehlbaum).

Session II: Cells, Genes, and Molecules (Dr. Chamuris); Anatomy & Physiology II (Drs. Hranitz and Wassmer); Human Sexuality (Dr. Wassmer.)

Summer Sessions 2008

- Session I - May 19 to June 27 (6 weeks)
- Session II - July 1 to Aug 8 (six weeks)
- Session III - May 19 to Aug. 8 (twelve weeks)

Summer Chemistry and Physics Offerings

The Chemistry Department at Bloomsburg University plans to offer the following courses this summer: Intro. Chem (50.101), Chemistry for the Sciences I (52.115), and Chemistry for the Sciences II (52.116). The Physics Department will offer Intro. Physics I (54.111) during Session I and Intro. Physics II (54.112) during Session II.

Check out the Biology Elective Offerings this Summer!

A great opportunity to catch up or get ahead



Field Botany (50.263), 3 credits, Session 1, MTWTh 8 to 8:55 a.m., TTH 9 a.m. to 12:50 p.m.

Dr. Williams

Sometimes you have to stop and smell the flowers, or admire the ferns, or maybe marvel over the sedges. This summer learn not only to sniff the flowers but also learn their names, characteristics, and habitats. You will learn techniques to collect and identify the non-woody plants common to central Pennsylvania. A great chance to get hands on experience in the field and learn practical skills that will make walking in the woods even more fun.



Current Topics (50-489 & 589), 3 credits, Session 1, MTWTh 3:20 to 5:00 p.m.

Topic: Human Evolutionary Genetics

Dr. Chamuris

In this course we will examine key aspects of human evolution from a genetic perspective. First we will review the basics of evolutionary theory, and the current understanding of hominid phylogeny. We will also review some fundamental aspects of molecular genetics and cytogenetics, with a focus on the methods used to gather data of evolutionary significance. We will then explore several major areas of human evolution genetics using recent and current peer-reviewed literature: hominid phylogeny, early human migrations and the ancestry of indigenous populations, and examples of natural selection and genetic drift in human populations. Issues of medical, anthropological, and phylogenetic significance will be stressed.

Marine Science Consortium SUMMER 2008 COLLEGE PROGRAM



The following Marine Science courses serve as biology electives and are offered at The Marine Sciences Consortium at Wallops Island, VA. E-mail **Dr. Hranitz** (jhranitz@bloomu.edu) or see **Drs. Klinger** (HSC 005), **Hranitz** (HSC 131) or **Corbin** (HSC 173) for enrollment details. Fees include tuition to BU and station fees to the MSC. In addition to the courses listed, MS-390 and 590, Problems in Marine Science are offered during each session.

SESSION I: MAY 12 - MAY 30, 2008

MS-241 Marine Biology- Beeching (Slippery Rock University.)
MS-431 Ecology of Marine Plankton - Butler (Kutztown Univ.)
MS-491 Coral Reef Ecology- Hunt (East Stroudsburg Univ.)

SESSION II: JUNE 2 - JUNE 20, 2008

MS-211 Field Methods - Kumar (Millersville University)
MS-342 Marine Botany - Wagner (Millersville University)
MS-343 Marine Ichthyology- Thompson (Lock Haven University)

SESSION III: JUNE 23 - JULY 11, 2008

MS-260 Marine Ecology - Hunt (East Stroudsburg Univ.)
MS-343 Marine Ichthyology- Dagit (Millersville Univ.)
MS-492 Marine Mammals - Ryan (Kutztown University)

SESSION IV: July 14 – August 1, 2008

MS-221 Marine Invertebrates- Whitford (East Stroudsburg)
SPECIAL SESSION: August 3 - August 17, 2008
Window to the Oceans - Ryan (Kutztown) (non-majors)



Greetings from SICB in San Antonio!

By Dr. John M. Hranitz

The annual meeting of the Society for Integrative and Comparative Biology (SICB) was held in San Antonio this year on January 2-6. Faculty (**Drs. Corbin, Venn, Wassmer, and Hranitz**) at the meeting were joined by four students (from left to right) **Trinity Stempko, Chelsea Barnes, Amy Savitski, and Chris Krum** traveling to present research in three posters.

Rather than read my thoughts about the meeting, please enjoy the student's perspective of their first national/international meeting. Below are comments from the four students attending the meeting.

"I was able to experience many different biology topics and speaking styles as well as different personalities. I found many of the talks to be very interesting, and I enjoyed all of the turtle/reptile and amphibian talks!!! The posters were really interesting as well because I was able to interact with other students and discuss their research. I also met other people conducting similar research as me. My favorite things about the conference and San Antonio (I don't have just one) would have to be: meeting Dr. Wibbels, speaking with other scientists that have done turtle research, interacting with other students, exploring San Antonio with Amy, Trinity, and Chris, ... and making contacts for my future graduate degrees." -Chelsea Barnes

"Seeing all the different research projects that were presented was amazing. Learning what biology conferences are all about was, for me, the best experience. I liked the talk that compared swimmer versus diver versus land animal cytoglobins and neuroglobins." -Chris Krum

"My favorite aspect of the SICB conference was getting to explore San Antonio and seeing all the southern culture for the first time, all while getting to know the other research students. Being a part of such a large group of students from all around the world presenting research was very exciting!" -Amy Savitski

"My favorite educational experience at the meeting was all the information on the sound and force of the mantis shrimp strikes. That was my favorite presentation! (closely followed by the presentation on the Madagascar chameleons). My favorite fun thing about San Antonio was visiting the missions. I would like to return and visit all of the missions to see the differences among them." -Trinity Stempko

To those of you conducting research this year, perhaps we'll see you next year at SICB in Boston!

SICB Presentations:

Barnes, C.; Sedon, M.; Hranitz, J.M. Late Summer Stream and Stream Bank Salamander Community Diversity in Northeastern Pennsylvania.

Krum, C.J.; Savitsky, A.N.; Hranitz, J.M.; Brubaker, K.D.; Barthell, J.F.; Yocum, G.D. Comparison of Stress Protein cDNA and Amino Acid Sequences Among Three Megachild Solitary Bees.

Stempko, T; Venn, C. Growth Rate Determinations for *Lepas anatifera* (Cirripedia:Lepadidae) in the Tropical Pacific Using Shell Growth Patterns and *In-situ* Temperature Records.

Rogers, S.; Corbin, C.; Wassmer, G. Ectoparasite Load, Fecundity, and Brood Survivorship in Barn Swallows (*Hirundo rustica*).



Check out BAHS Student and Faculty Research

Angela Shaffer is conducting two research projects with **Dr. Corbin**. The first is a longer-term project on co-evolution of morphological and life-history traits in two clades of sharks: the hound sharks (Triakidae) and the mackerel sharks (Lamnidae). Her idea is that there are particular life-history characteristics (parity, mode of birth, etc.) that evolve with pelagic morphology. In other words, a fast swimming pelagic foraging life-style places constraints on reproduction in these animals. Her methods are based largely on published phylogenies and life-history literature but she hopes to get to a natural history museum to personally take measurements on sharks. Additionally, Angela has taken on a short-term research project with Dr. Corbin measuring aspects of plumage color across subspecies of an African passerine bird (*Elmina longicauda*, the African Blue Flycatcher). With the help of morphological analyses by **Melissa Scubelek** and genetic analyses from **Dr. Hranitz**, **Dave Kessler**, and **Justin Dion**, they are testing hypotheses of introgression and speciation in this interesting bird.

Cara Shellenberger, a senior biology major, is working with **Dr. Henry** on multidrug resistance (MDR) gene regulation in the opportunistic fungal pathogen *Candida glabrata*. The emergence of *C. glabrata* in the last 15 years is troubling because of its intrinsic resistance to commonly used antifungals due, primarily, through the expression of MDR efflux protein that pumps these drugs out of the cell. Cara's research has been able to show that the loss of enzymes responsible for altering DNA packaging proteins (histones) results in decreased resistance to antifungal agents in this organism. Furthermore, this increased sensitivity has been shown to correlate with decreased expression of MDR genes. Future studies are planned that will test the effect of inhibitors of histone modifying enzymes (HME) on drug sensitivity with the hope that this will open up novel therapeutic options for the treatment of *C. glabrata* infections in humans.

Five students are working on molecular biology projects with **Dr. Hranitz** this spring. **Amy Savitski** is analyzing the mtDNA (cytochrome oxidase I) gene diversity in a sample of leafcutting bees she collected last summer on the Aegean Island of Lesbos. **Chris Krum** is conducting bioinformatic analyses to develop primers that will be used to sequence an intron of the stress protein HSC70 in leafcutting bees. **Valerie Letukas** and **Richard Carter** are experimenting with methods to purify and measure the activity of 70 kD stress proteins in leafcutting bees. **Dave Kessler** is sequencing the cytochrome b gene and the myoglobin intron in the African Blue Flycatcher. Two students are conducting field studies with Dr. Hranitz this spring. **Chelsea Barnes** (graduate student) and **Mike Sedon** (undergraduate student) are investigating the community structure of salamanders in the riparian zone of small streams in northeastern Pennsylvania.

Emily Kinkead will be examining the collections of gooseneck barnacles from 2 buoys (at 5N, 95W and 5S, 95W) recovered from the TAO array in the Pacific. She will identify the barnacles to species and then compare the species distribution on each buoy in the context of measured environmental parameters, including sea surface temperature, surface current, and primary productivity patterns in the Eastern Tropical Pacific. Emily is working with **Dr. Cynthia Venn**, Department of Geography and Geosciences. This study is the groundwork for a future study she will do with **Dr. Hranitz** looking at the genetic variation of barnacle populations on these buoys.

Shannon Carper, **Jillian Kida**, **Katie Raymis**, and **Jessica Whitenight** have started working in **Dr. Hess's laboratory**. They are currently learning various laboratory techniques and will begin working on investigating the role of EphA2 in promoting melanoma growth and spread with Dr. Hess. Stay tuned for more details...

Kyle Bartol is working with **Andy Troutman** on cloning the rest of the Daf-16 gene from a solitary bee species *M Rotundata*. Daf-16 is a gene which is involved in regulating glucose/insulin levels, survival, and responses to stress, such as heat shock. They have cloned a fragment in the DNA binding domain and recently isolated the 5 prime end of the gene. They are now working on the center portion of the gene, since the gene is estimated to be approximately 3-4 kb in length. This work is being conducted in **Dr. Brubaker's lab**.

Andy Troutman is finishing his master's thesis project of cloning a conserved region of Daf-16 and other Forkhead Transcription Factors from *M. Apacalis*. Andy is in his data analysis phase and has cloned fragments from Daf-16, FH A1, FH C2 and FH D3. **Dr. Brubaker** is his research mentor.

Kendra Soblesky is analyzing data and has begun writing her thesis. Her research helped establish the optimal manure to cheese whey ratios required for maximum methane production. She also demonstrated that methanogen activity varies with the manure source (even though they are all smelly!). She is currently monitoring the conditions in an established laboratory digester receiving allotments of cheese whey at varying intervals. The hope is to demonstrate the feasibility of sustainable methane production from cheese whey over time. She is planning to submit an abstract to the March CPUB meeting. **Dr. Nolt** is her thesis advisor.

More faculty and student research

Dr. Davis's lab is having a busy semester. The first order of business was recovering from a Chernobyl-like meltdown in a reagents freezer! **Josh Montgomery** is completing his independent study research and **Missy Tomcavage** is pursuing her master's research. Both are working on isolating and characterizing the avenic acid transporter from oats. The ultimate goal is to clone and sequence the full-length transporter gene, but along the way they are trying to: 1. clone and sequence a 1000 base pair fragment near the 5' end of the gene; and 2. clone, sequence, and compare a region that may be responsible for the specificity of the transporter to a similar region from the barley phytosiderophore transporter. Stay tuned!

Jared Geissinger has recently completed his Research in Biology Project and submitted an abstract for the Pennsylvania Academy of Science meeting entitled *Using Lumbriculus variegatus to Assess the Remediation of Streams Affected by Acid Mine Drainage (AMD)*. Jared used aquatic blackworms (*Lumbriculus variegatus*) to assess water quality by comparing their pulse, reversal behavior, and touch response after exposure to water from three Tioga County streams: Morris Run (AMD-impacted), Lick Creek (AMD-remediated), and Sand Run (un-impacted control). He showed that AMD-remediation positively affects aquatic life and indicates the value of blackworms in monitoring the restoration of Pennsylvania streams. Jared's research mentor is **Dr. Surmacz**.

News

BAHS Faculty Updates

Dr. Karl Henry was awarded a grant from the Dean's Research and Scholarship fund to complete research on "Histone-Modifying Enzyme-Dependent Regulation of Multi-drug Resistance Genes."

Dr. Angela Hess received a Margin of Excellence grant from the Bloomsburg University Foundation to fund her project titled "Investigating the role of EphA2 in promoting malignant melanoma." Funds from this grant will be used to support the stipends of two undergraduate research assistants for the Fall 2008 and Spring 2009 semesters. The project investigates the signal transduction mechanisms mediated by EphA2 which work to promote melanoma growth and spread to other organ sites within the body. Students will work on various aspects of the project, learning mammalian cell culture, protein isolation, and visualization using western blotting techniques. Dr. Hess also received a College of Science and Technology research award to fund her project titled "EphA2 as a promoter of growth in malignant melanoma." Funds from this award will investigate the signal transduction mechanisms used by EphA2 to promote the growth of melanoma. Dr. Hess will present at the 2008 annual meeting of the American Association for Cancer Research in April. The title of her abstract is "EphA2 as a potential therapeutic target for malignant melanoma."

Dr. John Hranitz recently presented a program for area children at Dinosaur Day at the Children's Museum in Bloomsburg.

Dr. Steven Rier was an invited speaker at the Environmental and Plant Biology Colloquium at Ohio University. He was hosted by Dr. Morgan Vis and presented a talk entitled "Biofilm extracellular enzymes as indicators of stream ecosystem function."

Drs. John Hranitz, Clay Corbin, and Gary Wassmer recently attended the annual meeting of the Society for Integrative and Comparative Biology in San Antonio, TX and presented papers with BAHS students. See page 9 for details.



Mark Your Calendars!

There are a number of local, state, and regional meetings planned for spring semester. This is a great opportunity to attend a scientific meeting and to present the results of your undergraduate or graduate research projects.

The 19th Annual Sigma Xi Student Research Symposium will be held on Friday, April 18, 2008 at St. Joseph's University, Philadelphia. Abstracts are due March 23. The keynote speaker is Dr. Jerry Golub, Professor of Physics from Haverford College. His talk is entitled "Novel Ways of Studying Fluid Flows." For more information, see <http://www.sju.edu/srs>

The Pennsylvania Academy of Science meeting is scheduled for April 4—6, 2008 near Harrisburg, PA. Several BAHS students and faculty are planning to present research talks and posters. Look for details in future issues of *BioSynthesis*.

Shippensburg, PA is hosting this year's annual meeting of the Commonwealth of Pennsylvania University Biologists (CPUB) on March 28—29. The featured speaker is Dr. Matthew Lamanna, the Assistant Curator of Vertebrate Paleontology at the Carnegie Museum of Natural History. Dr. Lamanna will discuss the evolution of birds. The meeting will also feature workshops on forensic sciences and developing a watershed research laboratory. A planetarium show focusing on spring and a biology photography exhibition are also planned.

THE BU MASTERS PROGRAM

The Department of Biological and Allied Health Sciences offers both a Masters of Science degree (M.S.) and a Master of Education (M.Ed.) in Biology. Our master's program in general biology provides opportunities for course work and research at the supraorganismal, organismal, cellular, and molecular levels of biology. The program prepares students for admission to doctoral programs or professional schools and also enhances the knowledge and experience of high school biology teachers. For more information, contact the graduate program coordinator, **Dr. Carl Hansen** (270 HSC).

Graduate Student News

Please welcome **Sumeet Sandhu** to our graduate program. Our graduate assistants for this semester are **Andrew Paluch**, taking care of Cell Biology and IPL, **Andrew Troutman**, who is overseeing Anatomy and Physiology, **Chelsea Barnes**, who keeps Concepts I on a roll, and **Kendra Sobolesky**, who maintains the microbiology laboratories. These four and **Missy Tomcavage** are planning to finish this spring, so look for their research seminars coming up in April/May. The rest of you, get ready for your candidacy exams!

Meet our New RA Students

Our second class of students in our new masters degree program in Radiologist Assistant (RA) began their studies fall semester by taking on-line courses. The group, now on campus for spring and summer, includes from left **Ross Klausing**, **Andre Pascal**, and **Joshua Tussing**, shown with program director **Mrs. Christine Mehlbaum**. The program also welcomes **Sandy Heier**, a new part-time secretary. The RA program is currently preparing for ARRT program recognition and will be evaluated in July.



BU is among the first in the nation to offer this new health care program. The RA bridges the gap between radiologic technologists and radiologist physicians. RAs will work under the supervision of a radiologist to perform such duties as patient interaction, performance of certain radiology procedures that are currently conducted by a radiologist, and participation in the systematic analysis of the quality of patient care in radiology. For more information on the RA program and curricular details see <http://departments.bloomu.edu/biology/ra/index.html> or contact Mrs. Mehlbaum at cmelhbau@bloomu.edu.

What is an REU?

REU stands for Research Experiences for Undergraduates. This program funded by the National Science Foundation seeks to involve undergraduate students in meaningful research experiences. The REU website lists a variety of research experiences that are available. See http://www.nsf.gov/crssprgm/reu/reu_search.cfm. Included among them is one involving our own **Dr. Hranitz** and one involving Millersville University, our sister institution.



National Science Foundation-Research Experiences for Undergraduates (NSF-REU) Program: Behavior and Ecology of Honey Bees and Leafcutting Bees. Stipend: \$3400, travel and living expenses are provided by research funding. Where: Aegean/Western Turkey. Tentative Start Date: June 2, 2008. Past research teams were composed of students from diverse backgrounds and experiences. Applicants of diverse backgrounds are encouraged to apply again this year. For additional information see local contact Dr. John M. Hranitz: HSC 131, 389-4130, jhranitz@bloomu.edu.

National Science Foundation-Research Experiences for Undergraduates (NSF-REU) Program: Watersheds: From River to Estuary. Stipend: \$415/week for 10 weeks plus all room and board and travel expenses up to \$300. Where: Millersville University Center for Environmental Studies Program. Dates: May 19 to July 25, 2008. Students from colleges in the PA State System of Higher Education are encouraged to apply. The application deadline is February 29, 2008. Information can be found at <http://www.millersville.edu/~reu/>.