



BioSynthesis

Volume 2, Issue 3 (April 2003)

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

Spring Semester Dates & Special Events

- APR 22 –23:** Student Research & Creative Projects Poster Session
APR 23: Earth Day Event: Trip to Mine
APR 24: Beta Beta Beta Initiation
APR 26: MCAT Exam
APR 26: Earth Day Event: Clean-up at Dr. Wood's
APR 27: Earth Day: Community Event at Town Park
APR 27: Biology Banquet at Willow Run Inn
APR 29: Earth Day Talk: Alternative Energy Sources
APR 30: Earth Day Talk: Green Cars
MAY 5: Final Exams Begin
MAY 9: Graduate Commencement
MAY 10: Undergraduate Commencement
MAY 27: Summer College Session I Begins



Look what's inside:

- Health Science Updates* 2
Earth Day Events & SciTech Scholarship 3
Student Research 4
BAHS Updates 5
BAHS Summer Offerings 6
Marine Science Center Summer Offerings and Summer Plans 7
Graduate Program News & Organismal Biology 8

Congratulations to May 2003 Graduates

B.S. Biology

Erin Ackerman
Stephanie Benfer
Elizabeth Bonnes
Jennifer Bryan
Rebecca Ebling, Microbiology Option
Brandilyn Fowler
Lois Kirchner, Marine Science Option
Tiffanie Kulaga, Marine Science Option
Brett Siegfried
Rachel Melnick
Angela Sabol
Kelli Schaffer, Chemistry minor
Eric Steffen

B.S. Medical Imaging

Shawn Booker
Paul Galette
Teri Kratz
Krystal Lebo
Pamela Startzel, B.A. Anthropology



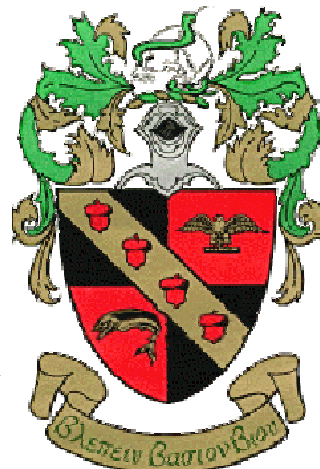
Honor Graduates

Pamela Startzel, summa cum laude
Angela Sabol, cum laude
Rachel Melnick, honors program graduate

Good luck and best wishes to all of our graduates! We are proud of you. Stay in touch and be sure to check out *BioSynthesis* on-line.

Beta Beta Beta Initiation

Beta Beta Beta is an honor society for students of the biological sciences. Membership is open to 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. To fulfill this mission, the national organization of Beta Beta Beta recognizes the accomplishments of outstanding individuals and chapters and publishes a national journal, *BIOS*. The faculty advisor of the BU chapter of Tri-Beta is Dr. Chamuris. Our chapter will hold its Spring 2003 Initiation Ceremony on Thursday, April 24 at 5 p.m. in 72 HSC. New initiates that qualify for full membership include: **Loren Abbott, Emily Bray, David Hakim, LeAnn Hess, Jennifer Kruk, Angela Mignogna, Meredith Murray, Katy Parise, Amanda Schompert, Brett Siegfried (promoted from Associate Member), and Erica Weiskircher.**



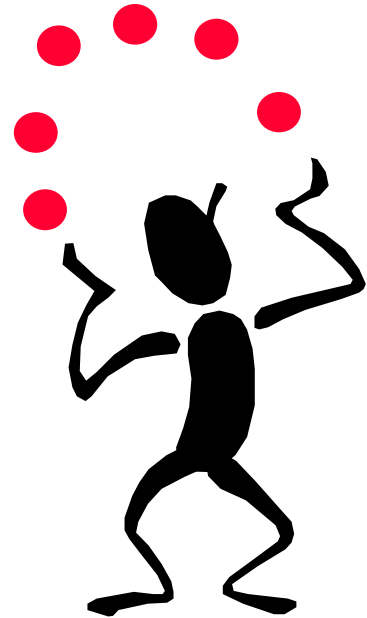


Health Science Updates

Students and Faculty Learn How to Juggle at the Health Sciences Symposium

Yes, you read the headline correctly! On April 3, Kehr Ballroom was filled with several hundred amateur jugglers tossing fluorescent scarves into the air and mastering the “guilt-free drop.” This lively group was under the direction of Dr. Steve Allen, Jr. the keynote speaker at the 12th annual Health Sciences symposium. Dr. Allen, son of comedian Steve Allen, focused his remarks on the therapeutic value of play and laughter. We all were reminded to practice creative silliness in order to juggle life’s stresses away.

The two-day symposium was a huge success and featured presentations, student posters, and a health fair. Many BAHS students participated in the event. These include: **Angela Sabol**, who introduced Dr. Allen; **Brett Siegfried** and **Joshua Rickards** who served as poster judges; **Sara Fisher**, **David Simcox**, **Justin Stevens**, **Jill Remaley**, and **Abby Hogue** who served on the poster committee; and **Jen Dillow** and **Mike Kaminsky** who went to breakfast with Dr. Allen. The following winners of the student poster contest were members of the Anatomy and Physiology II class: third prize, Hemolytic Disease of the Newborn Due to Rh Incompatibility, **Jim Black**, **Tina Stere**, and **Katie Cook**; Honorable Mention, The Tongue: Is yours Hairy? **Renee Weller**, **Rachel Guido** and **Jen Wesley**; Osteogenesis Imperfecta: A Look Into Brittle Bone Disease, **Jennifer Kemmerle**, **Laura Reynolds**, and **Justin Stevens**; and Sickle Cell Anemia: Just the Facts, **Rebecca Kehler**, **Tony Maturani**, and **Joseph Andrulewicz**.



Clinical News

All students who will be starting clinical education programs this summer or fall should see Dr. Kipe-Nolt to fill out the paper work if you have not already done so. Thank you!

The following students have been accepted into Johns Hopkins Hospital's Medical Imaging programs to begin their clinical education this summer.

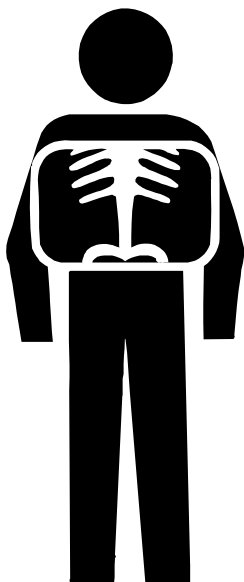
Mary Kate Johnson
Melanie Snyder
Justin Stevens
Ellen Walter
Nicole Zimmerman

The following students have been accepted into Geisinger Medical Center's School of Radiological Technology to begin their clinical education this fall.

Michelle Blandina
Gina Bolinski
Carrie Huffman
Amanda Lukus
Tiffany Schnure
Faith Warner

The following student has been accepted into the Robert Packer Hospital program in Medical Technology/Clinical Lab Science to begin her clinical education this fall

LeAnn Hess



Thanks for your Blood!

Graduate Student **Jennifer Venditti** has been busy conducting her thesis research which examines antibody profiles and white blood cell counts in college students involved in exercise programs of varying intensities. Thanks to all of the biology and allied health students who participated in this study by donating their time and their blood! It is greatly appreciated. This masters research project would not be possible without you!!



Earth Day Events



Check out the Earth Day activities described below. The BAHS home page has a link to a complete listing of events (<http://departments.bloomu.edu/biology/>). For additional information, please contact biology major **Amy Risen** (z1@epix.net). Earth Day activities are made possible through the assistance of Quest, HOPE, Chemistry Club, Biology Club, Marine Science Club, and the Physics Department.

Talks:

Alternative Energy Sources: Joe Scopelliti, supervisor at the Susquehanna Energy Information Center, will provide an overview of alternate energy sources and nuclear power on April 29 at 4:00 p.m. in the Multicultural Center (room 230) in Kehr Union.

Green Cars: Dr. Larry Mack, chemistry professor at BU, will address the issues we face in developing fuel efficient, low emission vehicles. Dr. Mack's presentation will be on Wednesday, April 30 at 4:30 p.m. in the Multicultural Center (room 230) of Kehr Union at 4:30 p.m. on Wednesday, April 30.

Off-Campus Activities:

Participants will meet on campus. Please contact Amy Risen to sign-up.

Clean-Up: Dr. Marianna Wood has an old dumping site on her property. HOPE started cleaning it up last year—they're going back to finish it! The clean-up will make you feel like you have accomplished something. Do something good for yourself and for someone else. Join us on Saturday, April, 26 from 12-6 p.m.

Acid Mine Drainage: John Horoshock, chemistry major, will be showing us around an acid mine drainage site outside of Shamokin. John is doing his undergraduate research with Dr. Christopher Hallen on water testing of acid mine drainage. The event will be from 3:30-7 p.m. on Wednesday, April 23. Sponsored by the Chemistry Club.

Community Event

April 27, 1-5 p.m., Town Park, by Susquehanna River in Bloomsburg! Spend the afternoon listening to environmentally inspired talks and music, in celebration of Earth Day! If interested, please bring a picnic lunch and refreshments. Hope to see you there! Sponsored by HOPE.

Anyone interested in fulfilling service hours for community service work, please contact us! We are looking for people to clean up the park after the event. Thanks.

SciTech Scholarships Available



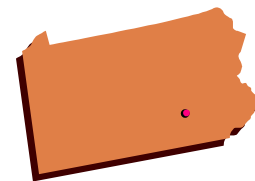
Scholarships for the 2003-2004 academic year are available for science and technology majors through a program called the New Economy Technology Scholarship (NETS). To be eligible for these \$3,000 scholarships you must be a PA resident, at least a sophomore, enrolled in a science or technology bachelor's degree program (not an education degree), have a 3.0 GPA, begin employment in PA in a related position within one-year of graduation (this may be deferred if you go to graduate school), complete a university approved internship or work experience in your field, and file a PELL grant and FAFSA form. Complete details, eligibility requirements, and applications may be obtained from the BU Financial Aid Office, 119 Student Services Center or at the website of the Pennsylvania Higher Education Assistance Agency (www.pheaa.org). From the PHEAA homepage, select *special programs*, then *New Economy Technology Scholarship (NETS)*, and then *program forms*. The deadline for submitting an application is Dec. 31, 2003.

Pre-Professional Committee Updates

The committee wishes all pre-professional students a rewarding, relaxing, and rejuvenating summer! Remember, summer is a great time to job-shadow. Many students also choose to do their volunteer work during the summer.



Commonwealth of Pennsylvania University Biologists Meeting



Undergraduates **Rachel Melnick, Justin Bixler, Amy Risen, Angela Sabol, graduate students Justin Reis (biology) and Larry Pryzblick (curriculum and instruction)**, and Drs. Kevin Williams, John Hranitz and Cindy Surmacz of the Department of Biological and Allied Health Sciences recently attended the 2003 Annual Meeting of the Commonwealth of PA University Biologists at Shippensburg University. Larry Pryzblick received the outstanding biology student award for the 2002-03 academic year from Bloomsburg University. Rachel Melnick and Dr. Chamuris presented a paper entitled *The effects of exogenous carbohydrates on basidiospore germination*. Rachel's research was conducted for her Honors Independent Study Project and she received a third prize award in the category of undergraduate platform presentation in cellular biology. Justin Bixler, Dr. Wassmer, and colleagues Drs. T.M. Hoban-Higgins and C.A. Fuller from the University of California (Davis) presented a poster entitled *The desert beetle Cryptoglossa verrucosus: A model for the investigation of the effects of spaceflight on biological rhythms*. Justin received a third prize award in the category of undergraduate poster presentations in ecology (invertebrates.) Justin Reis and Dr. Hansen presented a poster entitled *Cloning and sequencing of a heterotrimeric G-protein gamma subunit from Notothenia coriiceps*. Justin received a third prize award in the category of graduate student poster/platform presentation. Angela Sabol and Dr. Surmacz presented a poster on the *Effects of insecticides on pulse rates and mortality in Lumbriculus variegatus*. Angela's work represents the results of her Honors Independent Study project.

Student Research and Creative Activities Poster Session

BAHS students showcased their work at the annual student research and creative activities poster session held at Kehr Union on April 22 and 23. Undergraduate and graduate participants included:

Heather Adams, Julia Fabrega Climent, Holly Richendrfer, Michael Chabot, Erin Lyle, and Katy Parise: *Prior feeding experience and crowding affects behavior of the green sear urchin, Strongylocentrotus droebachiensis (Echinodermata: Echinoidea) in culture.* Mentor: Dr. Klinger.

Heather Adams, Julia Fabrega Climent, Katy Parise, and Holly Richendrfer. *Comparative ethology: A synthesis of individual studies.* Mentor: Dr. Klinger.

Justin Bixler: *The desert beetle Cryptoglossa verrucosus: A model system for the investigation of the effects of space flight on biological rhythms.* Mentor: Dr. Wassmer. Collaborators: Drs. T.M. Hoban-Higgins and C.A. Fuller.

Michael Kaminsky and Brett Siegfried: *Sequence analysis of zebrafish heterotrimeric G protein gamma subunits.* Mentor: Dr. Hansen.

Lois Kircher: *Optimization of PCR conditions for the cytochrome oxidase (subunit 1) locus and sequence analysis in Lepas anatifera.* Mentor: Dr. Hranitz. Collaborators: Drs. Venn and Klinger.

Tiffany Kulaga: *Screening and design of PCR primers for cytochrome b locus in barnacles of the genus Lepas.* Mentor: Dr. Hranitz. Collaborators: Drs. Venn and Klinger.

Rachel Melnick: *The effects of exogenous carbohydrates on basidiospore germination.* Mentor: Dr. Chamuris.

Katy Parise: *Parentage analysis reveals offspring sired by yearling male collared lizards.* Mentor: Dr. Hranitz, Collaborators: Drs. Van Den Bussche and Baird.

Justin Reis and Amy Risen: *Cloning and Sequencing of a Heterotrimeric G-Protein Gamma Subunit from an Antarctic Ice fish.* Mentor: Dr. Hansen.

Angela Sabol: *The effects of insecticides on pulse rates and mortality of Lumbriculus variegatus.* Mentor: Dr. Surmacz.

Brett Siegfried and Michael Kaminsky: *Expression of heterotrimeric G proteins in zebrafish.* Mentor: Dr. Hansen.



BAHS Updates



It's a Boy!

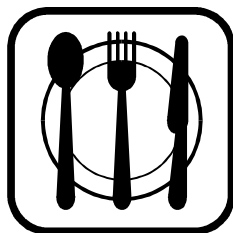
Dr. Casey Shonis and her husband Dr. John Shonis are the proud parents of a healthy baby boy! Connor Anthony Shonis arrived on Thursday, April 3 at 10 p.m. at Bloomsburg Hospital. Connor was 7.5 pounds and was 19+ inches long. He has a full head of black hair and his mom reports that he is adorable. All are doing well!

Congratulations Mate!

Tracy Harbaugh, a sophomore biology major, has been selected by the School for Field Studies to travel to Australia during spring semester 2004. Tracy will work as a part of a research team conducting field-based research projects. Also included are field trips to the Great Barrier Reef and expeditions to the Australian outback. Congratulations Tracy--Take lots of pictures!



Hope to See you at the Biology Banquet!



Ready to celebrate the end of an academic year? The Biology Club is sponsoring its second annual Biology Banquet on Sunday, April 27 at 6:30 p.m. at Willow Run Inn, Berwick. This will be a night filled with great food and company. Don't miss the fun! Awards will be given out to students and professors. Bring a date! The banquet is \$13.60 for biology club members and \$18.60 for non-biology club members. Please sign-up on the bio club bulletin board on the green floor—it's across from the bathrooms! For tickets and information, see **David Hakim**, Biology Club President (dlhakim@hotmail.com or 784-6863). Please make checks payable to David Hakim.

Marine Science Club News

The Marine Science Club has finished their sound exhibit for the Bloomsburg Children's Museum which features whales, dolphins, seals, sea lions, and seagulls. At the next meeting, the group will conduct elections for next semester's club. Current officers are: **Brad Landis**, president; **Kevin Brace**, Vice President; **Katy Parise**, Secretary; or **Ben Day**, Treasurer.



News You Can Use



Deadline to submit an application and proposal for Undergraduate Research in Biology:

- For Summer: - Last day of classes in spring semester
- For Fall: - Last day of classes in spring semester

Deadline to sign-up for Internships:

- For Summer: 2nd day of classes of chosen summer session:
- For Fall: 5th day of classes, fall semester

Change in time for Vertebrate Histology (50.364.01): To accommodate your requests, the time for histology lecture has been moved to TTH 11:00, lab TH 9:00. This allows students to schedule both Vertebrate Histology and Ecology during Fall semester. This course provides an excellent background for students who are interested in pre-professional programs (pre-medicine, pre-dentistry, pre-vet, etc.). pre-physician assistant, and pre-physical therapy.

REMINDER: Check the bulletin board next to the elevator on the green floor (called News, Notices and Nonsense) frequently.

Department of BAHS Summer Offerings



Session 1 (5/27 – 7/03)

(09.230) Human Sexuality
 (50.100) Cells, Genes and Molecules
 (50.173) Anatomy and Physiology I
 (50.390) Research in Biology I
 (50.391) Research in Biology II
 (50.490) Internship in Biology/Allied Health Sciences
 (50.493) Honors Independent Study
 (50.494) Honors Independent Study 2

Session 2 (6/16 – 7/25)

(50.101) Human Biology

Session 3 (7/7 – 8/15)

(09.230) Human Sexuality
 (50.102) Ecology and Evolution
 (50.174) Anatomy and Physiology II
 (50.390) Research in Biology I
 (50.391) Research in Biology II
 (50.490) Internship in Biology/Allied Health Sciences
 (50.493) Honors Independent Study
 (50.494) Honors Independent Study 2

Session 5 (6/16 – 7/03)

(50.100) Cells, Genes and Molecules
 (50.457) Entomology

Session 6 (7/7 – 7/25)

(50.252) Field Zoology

Session 8 5/27 – 8/15

(50.390) Research in Biology I
 (50.490) Internship in Biology/Allied Health Sciences

The following chemistry classes are among those offered at BU this summer:

- Introductory Chemistry (50.101)
- Fundamentals of Inorganic Chemistry (52.115)
- Chemical Principles and Measurements (52.116)
- Organic Chemistry I (50.231)
- Organic Chemistry II (50.232)



A Close-up Look at Summer Field Courses



Please sign up NOW if you are interested in taking a summer field course.

50.457/557 Entomology (3 credits) Session V: June 16— July 3. Dr. Wassmer. Class meets Monday—Thursday from 9:50 a.m. to 4:00 p.m.

Bugs R Us! Did you ever wonder what that thing was crawling on your shirt or eating your frosted flakes? If so, join us in Entomology (50.457) this summer. Lecture material will include the physiology, behavior, morphology, and evolution of insects. In lab, you will collect and present insects (and keep your collection at the end of summer). Added bonus - You get to design and conduct a project, this might even included doing brain surgery on cockroaches. Bring your sunscreen and bug repellent.

50.252 Field Zoology (3 Credits) Session VI: July 7 - July 25. Dr. Hranitz. Class meets Monday - Thursday from 9:50 a.m. - 4:00 p.m.

A three-week introduction to the natural history of animals (emphasis on vertebrates) in the field. What better way to become familiar with animals than to spend three weeks in the summer finding them in nature and seeing them in action? This is a hands-on approach (roll up your sleeves and get dirty) to the study animals of Pennsylvania and coastal marine habitats with students collecting live animals in the field for observations in the laboratory and by making observations in the field. Field trips will be taken to as many of Pennsylvania's exotic locales (forests, bogs, barrens, ponds, streams, and much more!) as we can possibly tolerate! The course features a field trip to the Wallops Island Marine Science Center (an additional student expense), including boat trips in the coastal creeks and Atlantic Ocean near Chincoteague and Assateague Islands to observe animals in coastal habitats (barrier islands, salt marshes, bays, intertidal zones, and much more). For additional information see Dr. Hranitz's web page: <http://facstaff.bloomu.edu/jhranitz/teaching/fieldzool.htm>



Marine Science Center Offers Summer Classes

Below is a listing of summer courses offered at the Wallops Island Marine Science Center. Please note that many of the dates in the summer schedule booklet are incorrect. Remember...you don't have to be in the Marine Science Program to register for courses at the Marine Science Center. Most courses offered at the Marine Science Center count as Biology Electives for students pursuing a B.S. or B.A. in Biology. Many of the courses appeal to students whose primary interests are in terrestrial or aquatic biology. Please see Dr. Klinger (5 HSC—red floor) for more information.

Session I (May 26—June 13): Field Methods in Oceanography (55.211); Marine Invertebrates (55.221); Marine Ichthyology 55.343; Marine Ornithology (55.345)

Session II (June 16-July 4): Marine Biology (55.241); Ecology of Marine Plankton (55.431); and Coastal Environmental Oceanography (55.451)

Session III (July 7—July 25): Marine Biology (55.241); Biological Oceanography (55.464); and Marine Mammals (55.492)

Session IV (July 28-August 15): Marine Invertebrates (55.221); Marine Ecology (55.260); Scanning Electron Microscopy: Marine Applications (55.471); and Coral Reef Ecology (55.491)

Summer Plans....



BioSynthesis roamed the halls of Hartline asking Biology and Allied Health Science majors that question at the top of everyone's mind...

What are you going to do this summer?

Stephanie Benfer, senior, graduating in May. I am going to try to find a job in Biology before enrolling in a masters program in Biology or a Physician Assistant Program.

Jonathan Confer, sophomore, Bio maybe. I am going to work on a private charter fishing boat in Sandy Hook Bay, New Jersey.

Jen Dillow, junior, Medical Imaging: I am going to work at Geisinger Medical Center part-time as an X-ray technologist.

Kaylee Fischer, freshman, BA Bio, Pre-PT. I am going to work at Weis Markets as a desk clerk/cashier/seafood worker!

Doreen Gill, senior, BA Biology. I am going to Cancun! I hope to do an internship in pharmacy. I will also work at the Radisson as a waitress.

Michael Kaminsky, sophomore, BS Biology, pre-medicine. I hope to either have an internship at the University of Massachusetts Medical School doing biomedical research OR obtain a position as a plant virologist with the Department of Agriculture in Harrisburg OR take summer classes OR work as a bartender at a country club.

Michele Sienkiewicz, freshman, BA Bio. Pre PT. I am going to help out with BrainLinks, the program in Berwick where we teach kids about the brain. I am also going on a cruise to Nova Scotia!

Sara Stackhouse, freshman, BS Biology, pre-medicine. I plan on taking some summer classes, going to work, and doing some volunteer work for the 4-H Club through the County Extension office.

Angela Wickstrom, senior, BS Biology. I am looking for an internship or employment at an area hospital or lab. I hope to take a vacation somewhere.



The Department of Biological and Allied Health Sciences offers both a Master 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 (123 HSC).

Summer Graduate Course Offering:

Entomology

Fall Graduate Course Offerings

Comparative Animal Physiology
Microbial and Molecular Genetics
Conservation Biology
Microbial Physiology
Integrated Physiology Lab

Thank you to our graduate assistants for all of your hard work, assistance, and enthusiasm this year. It is greatly appreciated!

Organismal Biology and Natural History: Is it for you?

Dr. John Hranitz

Harry Hartline: Should I take courses in organismal biology and natural history?

Connie Concepts: YES!

Now Here's Why!



Cellular and molecular biology are firmly established as the fastest growing areas in science, not only in terms of knowledge, but also in commercial and medical applications. Molecular skills and techniques are an absolute must for students who want successful careers in biology. Clearly, students who want to become ecologists or evolutionary biologists can no longer avoid becoming familiar with molecular techniques. This has led biologists who study life at the level of the organism and higher to ask some hard questions. Is there a place for natural history, ecology, and organismal biology in biology? If ecologists and evolutionary biologists need to be familiar with molecular techniques, do cellular and molecular biologists need to know the biology of a diversity of animals when there are well established animal models (*Drosophila*, mice, rats, gerbils, zebrafish, *Caenorhabditis elegans*) to study physiological and cellular mechanisms? Obviously there is still a need for natural history, ecology and organismal biology, but what might surprise many students is that the need for this type of training is not relegated to the budding conservation biologists, ecologists, evolutionary biologists, and Discovery Channel hosts. (Although Discovery Channel show hosts are very popular with the public!) While much has been learned from the study of model organisms, comparative studies of physiological and molecular mechanisms are increasing at national meetings and in the literature. Comparative studies investigate a biological phenomenon across multiple taxonomic groups to discover evolutionary and environmental impacts on the biology of an organism. This trend is evident among those that study animal behavior and physiology and is becoming increasingly important in the field of molecular and cellular biology (e.g., Dr. Hansen's comparative study of G-proteins in stenothermal and eurythermal fish, ancestral fish versus derived fish). But who has the natural history and organismal background to know what species to use in comparative studies? The molecular biologist not familiar with organismal diversity or the molecular biologist familiar with organismal diversity? In taking your biology electives, the choice is yours!

50.212 Vertebrate Zoology (3 Credits). Fall 2003. Class meets MW 2-2:50 pm, T 2-4:50 pm

A semester-long foray into the natural history of vertebrates. How do birds fly and fish swim? Why is the sex of some species determined by genetics while other species have environmental sex determination? Why did the dinosaurs disappear? Is *The Far Side* cartoonist Gary Larson correct, was the demise of the dinosaurs caused by smoking tobacco? Can you spell C-R-O-S-S-O-P-T-E-R-Y-G-I-I? You say warm-blooded, I say endotherm. How is it that woodpeckers do not get concussions while "pecking" for insects? (Do not try ramming your head against a tree with the same force.) Lectures and laboratory focus on the basic biology (ecology, physiology, behavior, reproduction, and much, much more!) and evolution of vertebrate animals.