

Hope College Department of Biology Newsletter

Dr. George Abraham with Biology Department for Spring Semester

The Biology Department, in conjunction with the Department of Education, has the pleasure of hosting Dr. George Abraham, visiting scholar and Plant Biologist from American College, Madurai, India. Dr. Abraham came to Hope College through sponsorship of the United Board for Christian Higher Education.

At the beginning of his visit Dr. Abraham stated that he was very happy to be at Hope College for the Spring Semester and was looking forward to learning more about our curriculum and teaching methods. He said that he was made to feel very welcome by the openness and friendliness of Hope's faculty, staff, and students alike.

As a result of the efforts and sponsorship of the United Board for Christian Higher Education, both the Biology Department and Dr. Abraham were able to enjoy an experience that was both enriching and memorable.

Good News and Congratulations for Bio Faculty !

Congratulations, Dr. Evans, on being awarded tenure. The department wishes you a terrific - and well deserved - sabbatical leave.

RECENT GRANT ACTIVITY

Dr. Leah Chase "The Regulation of a Neurotransmitter Transporter by Reactive Oxygen Species". Funded by The Campbell Foundation \$32,000 for 2 years beginning July 1.

Congratulations, Leah!!

Dr. Thomas Bultman, Dr. Greg Murray, and Dr. Debbie Swarthout. Submitted "Acquisition of Controlled Environment Chambers for Enhanced Research in the Plant Biology Program at Hope College" NSF/MRI \$154,058 for 2 years

Dr. Thomas Bultman and Dr. Debbie Swarthout. Submitted. "A Multidisciplinary Test of Mutualistic Benefits Fungal Endophytes Provide their Host Plants" NSF CRUI \$816,773 for 4 years

Good News for Dr. Chase

Dr. Leah Chase has been named a "Towsley Research Scholar". Dr. Chase will use the award to support her ongoing research in neuroscience as well as to assist in the development of a neuroscience minor at Hope.

Several Bio Faculty Attend Conferences This Semester

Drs. Bultman, Evans, Murray, Swarthout and Winnett-Murray all attended the Michigan Academy of Sciences, Arts and Letters Conference hosted at Hope College in March.

The title of Dr. Bultman's talk was, "A Test of Ethological Isolation Among Entomophilous Fungal Species Sharing Common Insect Visitors" and was co-authored with Adrian Leuchtman, Geobotanisches Institut ETH, Zurich, and Thomas Peck, Truman State University, Kirksville, Missouri.

Dr. Evans's talk was titled, "Adaptive Radiation and Extinction in the Plant Family Bromeliaceae (Bromelioideae) and was co-authored with Hope student, Stephanie L. Kortering.

Dr. Murray presented "Competitive Mechanisms of *Vinca minor*, an Invasive Groundcover, in a Michigan Beech-Maple Forest" with students Megan Burkart and Alysa Darcy.

The title of Dr. Swarthout's talk was "The Physiological Response of Fraser fir Seedlings to Drought-related Stress in Weedy and Non-weedy Field Locations of Michigan" and was co-authored with student Jason Courter (Taylor University - Upton, Indiana).

"The Effects of a Prescribed Burn as a Control Method of the Invasive Plant *Eleagnus umbellata*" was presented by Dr. Kathy Winnett-Murray and co-authored by Dr. Murray, and students Angela Bunker, Anne Hilbrecht, James Grosse, and Spencer Bacon.

Dr. Barney attended the Experimental Biology 2003 meeting in April in San Diego California.

Dr. Evans attended the Monocots III conference at the Rancho Santa Ana Botanic Garden in California in April. He presented "Adaptive Radiation and Extinction in the Plant Family Bromeliaceae (Bromelioideae)" with students Stephanie Kortering, T. Wendt and Dr. Greg Brown (University of Wyoming).

Dr. Evans also presented "Subtribal Relationships in the Tribe Transdescantieae (Commelinaceae) Based on rbcL and ndhF Sequences" at Monocots III with student Dylan Wade and Dr. R. Faden (Smithsonian Institution).

-
-
BIOLOGY DEPARTMENT SEMINAR SERIES SPRING 2003
-

NOTE: this is the wrong year.

January 11, 2003 Dr. Diane Ebert-May, Michigan State University. *Assessment: Data Collection Purpose - Student Learning.*

January 18, 2003 Dr. William F. Jackson, Western Michigan University. *Managing and Manipulating Complex Food Webs: Biocontrol of Crop Pests with Spiders and Beetles*

January 25, 2003 Dr. Blaine Moore, Kalamazoo College. *Protein Kinase C-Regulated Cleavage of Alzheimer's Amyloid Precursor Protein*

February 1, 2003 Dr. David H. Wise, University of Kentucky. *Managing and Manipulating Complex Food Webs: Biocontrol of Crop Pests with Spiders and Beetles*

February 15, 2003 Dr. Jean Chin, National Institutes of Health. *What's New at NIH?*

March 1, 2003 Dr. Philip Wilson, Penn State College of Medicine. *Science, Pseudoscience and Sex: From the World to Brave New World Conceptions of Human Heredity*

March 8, 2003 Dr. Cheng C. Kao, Indiana University. *How Does a Virus Know Which RNA to Replicate? Specificity in Polymerase-RNA Recognition*

March 28, 2003 Dr. David McDonald, University of Wyoming. *Bears and Rosy-finches: A Genetic Line Across Wyoming*

April 5, 2003 Dr. Charles Thompson, Illinois State University. *Evolution of Clutch Size in Birds: the Role of a Cost of Reproduction*

April 12, 2003 Tim Geary, Pharmacia. *Nematode Neurobiology: from Physiology to Bioinformatics and Back Again*

April 19, 2003 Dr. Brad Wallar, Van Andel Institute. *Regulation of Cytoskeletal Remodeling by Rho GTPases*

TRI BETA ELECTS NEW OFFICERS FOR 2003-2004 ACADEMIC YEAR

President: Isabelle Phuong Le

Vice-President: Seth DeVries

Treasurer: Julie Van Kalker

Secretary: Stephanie Kortering

Historian: Karina Machado

Congratulations to the newly elected executive committee members. We look forward to seeing you all next semester!

A big Thank You to the executive committee members for the 2002-2003 academic year. Best of luck in your new ventures...

Ryan Hamby - President

Jody Murray - Vice-President

Matt Teusink - Treasurer

Isabelle Phuong Le - Secretary

Karina Machado - Historian

Aaron Johnson and Ryan White - Social Co-chairs

ALUMNI NEWS

Paul Bartell ('93) is still in Germany, still working at what was formerly the Max Planck Institute : Verhaltenphysiologie (Konrad Lorenz's old site). Paul relates that it's inspiring to see his old goose o every day! He's still studying biological rhythms, but has expanded into how they affect and control b migration. He's also been doing some infrared filming, at night, to watch the win-whirring behav (Zugunruhe) that small nocturnally-migrating songbirds exhibit when held in a cage during the migrat season. A German production company that creates nature documentaries will use some of Paul's foota for a television show in the fall, which is exciting. Paul plans on staying there a little while long contingent upon available funding and what he can find as far as a position in the States.

Laura Beth Nederveld ('02) is employed at Annis Water resources Institute in Muskegon, MI and is doi very well. She was promoted to a permanent position in November and is currently working on the Rog River, Muskegon River, and Lower Grand River Watershed projects funded by the Department

Environmental Quality. Each project is in a different stage so she's either helping to collect information about NPS pollution in the watershed or disseminating pertinent information to the public about watershed problems or how they can get involved, change their behaviors, etc. She reports that she has started taking a few IT seminars through GVSU to learn Dreamweaver, for web design, and MS Publisher and hopes to updating their project web sites on her own soon! She's also planning a Farmer Workshop for Muskeg River Watershed Farmers to introduce them to Natural Resources Conservation Service programs available to them that will help reduce sedimentation, crop runoff, cattle access, etc. as well as restore wetlands and natural lands. As you can see, she's keeping pretty busy!!

Davis ('03) Completes Valuable Internship at Environmental Resources

The aquatic toxicology laboratory at Environmental Resources Management (ERM) performs water quality testing for places like factories, landfills, wastewater plants, campgrounds, food service providers, and other companies. One of the offices of ERM is located in Holland, Michigan. The aquatic toxicology lab directed by Bruce Rabe.

The lab tests water samples from their clients for ammonia and chlorine levels as well as runs toxicological assays with different concentrations of the client's sample. Two kinds of toxicity testing can be performed: acute (short, no renewals) and chronic (up to 22 days long). Three different organisms can be used for the tests: fathead minnow (*Pimephales promelas*), *Ceriodaphnia*, and *Daphnia magna*. Results from the tests reveal how healthy the animals are after being exposed to the effluent.

Jessie's daily routine at ERM was not always the same, but there are certain routines that she usually followed. When first arriving at work, she would check the fathead minnow colony for eggs, move old eggs from previous days down the line, and collect new hatchlings for more tests. After doing fish colony maintenance, she would feed brine shrimp to the fish undergoing toxicity tests, and rinse any plastic equipment that has been soaking in bleach water overnight. She then helped to perform the toxicity tests which consisted of renewing the water in the tests, removing dead fish, and taking dissolved oxygen level, pH, and temperature readings on the water samples.

Before leaving for the day, she fed the test-fish again, as well as all the minnow breeding stocks and *Daphnia* colonies. Slight variations to this routine included doing ammonia-level testing on water samples, weighing out tinfoil to be used in the over, or missing different kinds of water needed for their experiments.

Overall, the lab had a professional yet friendly atmosphere and she enjoyed her time there very much. This was a valuable experience for her, one that opened a door to go to graduate school because she now has experience with fish toxicological testing. In the immediate future, she plans to pursue a master's degree in the department of fisheries, wildlife, and conservation biology at the University of Minnesota Twin Cities campus, and will start off the summer working on a project involving fathead minnows. She will start her thesis in the fall, conducting research on the endangered Topeka Shiner to determine its oxygen and temperature requirements for survival. This was made possible, at least in part, because of her experience at ERM.

Submitted by Jessica Davis

BIOLOGY DEPARTMENT STUDENT AWARDS SPRING 2003

Wolterink Prize

Kelley Hutchins '05

Biology Service Award

Ryan Hamby '03. Jenison, MI

Patterson Award

Jody Murray '03 Grant, MI

Jonathan Atwell Dec. '02 Muscatine, IA

DeKruif Writing Award

Timothy Folkert '02 Holland, MI for Scientific Review/Term Paper

Timothy Stowe '02 Valparaiso, IN for Scientific Research Paper

Biology Book Award

Ryan Weaver '06

The Undergraduate Award for Achievement in Biochemistry

Samuel C. Lien '05 Midland, MI

Junior Science and Math Education Book Awards

Karina C. Machado '04 Hudsonville, MI

Amy C. Zwart '04 Grand Rapids, MI

Miner Stegenga Award (Kinesiology)

Joshua P. Rumpsa '03 Grand Rapids, MI

Technos International Prize

Nora Staal '03 (Minor), Kforshmaryaha, Israel

The American Institute of Chemists' Award

Matthew B. Ambrose '03 (Minor) Midland, MI

William and Mabel Vanderbilt Sr. Family Awards in Kinesiology

Kyle M. Morrison '04 (Minor) Niles, MI

The Charles E. Lake Memorial Prize in Philosophy

Nora Staal '03 (Minor), Kforshmaryaha, Israel

The Ruth W. Todd Classics Prize (Modern and Classical Languages)

Katherine A. Ramsey '03 Holland, MI

Marguerite Prins French Award (Modern and Classical Languages)

Brandon L. Guernsey '03 (Minor) Greenville, MI

Delta Omicron Scholarship *Alpha Chi* Chapter (Music)

Alisa L. White '03 Sterling, IL

Dean of Students Race Issues Paper Contest Award

Brandon L. Guernsey '03 (Minor) Greenville, MI

Senior Sigma Xi Awards

Jonathan Warner Atwell, Muscatine, IA

Spencer J. Bacon, Custer, MI

Angela Lynn Bunker, Muskegon, MI

Jessica J. Davis, Plainwell, MI

Ryan Daniel Hamby, Jenison, MI

Lisa Nicole Hardy, Midland, MI

Gerrit William Heetderks, Webster, NY

Qingfei Jiang, Changchun, China

Aaron Stuart Johnson, Grand Blanc, MI

Paul William Kloostra, Rockford, MI

Sharmon Maria Knecht, Columbia City, IN

Holly Rene Martin, Houston, TX

Jody Ann Murray, Grant, MI

Sarah Elizabeth Sanderson, Holland, MI

Matthew James Teusink, Fremont, MI

Mitchell Neal Wacksman, Essexville, MI

Dean of Students Race Issues Paper Contest Award

Brandon L. Guernsey (Minor) Greenville, MI

Students Inducted Into Mortar Board

Scott Hinze '04 (Minor) Shelby, MI

Michael Ross '04 River Forest, IL
Timothy Stowe '03 Valparaiso, IN

Initiates Into Phi Beta Kappa

Jonathan Warner Atwell, Muscatine, IA
Lisa Nicole Hardy, Midland, MI
Aaron Stuart Johnson, Grand Blanc, MI
Jody Ann Murray, Grant, MI
Sarah Elizabeth Sanderson, Holland, MI
Matthew James Teusink, Fremont, MI
Alisa L. White, Sterling, IL

Athletic Blanket Awards

Angela Bunker, Muskegon, MI - Softball (captain)
Daniel Mann, (Minor) Grand Haven, MI - Tennis (captain)
Devon Quinn, Traverse City - Football
Josh Rumpsa, Grand Rapids, MI - Football (captain)
Sarah Sanderson, Holland, MI - Cross Country, Track
Jonathan Wendrick (Minor) Brighton, MI - Golf, Track