Department of Biological Sciences
Bio Briefs

Spring 2009

EASTERN ILLINOIS UNIVERSITY

A Note from the Chair

Alumni and Friends:

Greetings from the Department of Biological Sciences at Eastern Illinois University. Since our last newsletter, we have hired a laboratory coordinator for our introductory biology courses, Ms. Jamie Washburn, and a new tenure-track faculty member, Dr. Kai "Billy" Hung. Dr. Hung is a microbial cell biologist and complements our developing strength in cell and molecular biology. The department is in the midst of a search for a fisheries biologist while the College of Sciences is preparing to interview candidates for a Science Education position.

Dr. Charles "Chuck" Costa will retire in Mary 2009. Chuck brought a wealth of knowledge to the Introductory Biology and Cell Biology courses and touched the lives of a multitude of students including Dr. Craig Gatto who has written a moving tribute to his mentor and friend in this newsletter. Chuck also served as coordinator of the M.S. in Biological Sciences program for more than ten years and was responsible for the tremendous improvement in the quality of the program and its students. We are grateful for all that Chuck accomplished during his tenure at Eastern. Chuck and his wife, Toni Smith, will continue to reside in rural Charleston.

Last year more than 100 undergraduate and graduate students participated in research and internship opportunities in the department. This included seven undergraduate students who successfully completed Honors Theses and graduated with departmental honors and twelve graduate students who completed and successfully defended Master's thesis projects. Twelve of the projects designed by undergraduate students were funded through the Undergraduate Research Fund in the Department of Biological Sciences. In addition, four undergraduates received SURE awards from the College of Sciences and two received research awards from the Council on Undergraduate Research. Six graduate students received GSI awards from the College of Sciences, five received Research/Creative Activity Awards from the Graduate School, and twelve received Williams Travel Awards from the Graduate School. Most of these students gave oral and poster presentations at state, regional, and national meetings and several were included as co-authors on peer-reviewed articles in scientific journals. In the last year, five students won best oral or poster presentation awards at scientific meetings and seven received research grants from external agencies including Sigma Xi, Beta Beta Beta, the Illinois Department of Natural Resources, and the Illinois Lake Management Association. In addition, two undergraduate students (BreAnne Nott and Nikki Pisula) received Young Botanist Awards from the Botanical Society of America and a graduate student (Joanne Crawford) received EIU's Distinguished Master's Thesis Award.

The faculty in the Department of Biological Sciences remains active in research and scholarship as evidenced by publication of more than 25 peer-reviewed articles in scientific journals and more than 50 presentations at state, regional, national, and international meetings. Currently more than a dozen faculty have research grants and contracts totaling more than $1,500,000 from agencies including the National Science Foundation, the National Institute of Health, the United States Department of Energy, the United States Department of Agriculture, The United States Fish and Wildlife Service, the Illinois Environmental Protection Agency, the Illinois Department of Natural Resources, the Missouri Department of Conservation, and the Illinois Department of Public Health that provide opportunities for undergraduate and graduate students research.

We continue to be extremely grateful to all of our alumni and friends whose generous donations support our programs. Your contributions have allowed the department to support undergraduate student research and travel to meetings, create a fund to support a week-long Darwin Days program, renovate laboratory facilities and purchase state of the art equipment for teaching and research. In short, your support has had a significant and positive impact on the learning opportunities that we can provide our students.

By the time you receive this newsletter, I will have begun an administrative leave in preparation for my return to faculty in Fall Semester 2009. The department has accomplished much in the last five years: Five tenure-track faculty, a pre-health professions advisor and an introductory biology laboratory coordinator were hired, an undergraduate research fund for competitive grants was established, alumni have blessed the department with more gifts and equipment donations than ever before, the graduate student-run seminar series is now financially self-sufficient and thriving, the graduate teaching assistant program that offers formal teaching opportunities to graduate students is well-established, the provost presented the department with a university assessment award, and four laboratory spaces in Life Sciences as well as the "mouse house" were renovated to support faculty and student research. I'm looking forward to spending more time in the classroom and laboratory teaching and mentoring students.

Please write or email us (biosci@eiu.edu) and share news about your career and family. Better yet, the next time you're in Charleston, come and visit. Your friends in the Department of Biological Science extend our best wishes in your career and personal life.

Andrew S. Methven, Ph.D.

Professor and Chair

Rare Tropical 'Corpse Flower' Blooms at EIU

Amorphophallus titanum (Titan Arum) is a flowering plant native to Sumatra that produces the largest un-branched inflorescence in the world. The plant is also known as the corpse flower because, when in bloom, it produces a fragrance similar to the odor of rotting meat to attract flies and carrion beetles for pollination. The Titan Arum produces a single leaf at a time which can grow to be over fifteen feet tall and ten feet wide from a tuber that can weigh up to two hundred pounds.

The Biology Department obtained a Titan Arum seed from the University of Wisconsin-Madison in 2001 and it has been growing in the Thut Greenhouse Tropical Room for over seven years. In June, 2008 it surprised everyone by sending up its first inflorescence from a thirty pound tuber. The inflorescence was 67.5 inches tall when it opened on June 21, 2008. That's just a baby compared with the inflorescence's potential to grow over nine feet tall as the plant gets older.


Titan Arum inflorescence opened June 21, 2008

When the bloom opened it had a VERY potent odor and for about six hours it was really, really nasty in the Tropical Room. Some visitors said they could smell the odor of rotting meat more than three blocks away and thought something had died in a nearby dumpster! The bloom remained open for less than a day, attracting several hundred flies and more than 3,000 visitors.

After blooming, the inflorescence normally dies back quickly if it hasn't been pollinated and the tuber goes dormant for about six months before sending up another leaf. However, the arum surprised us again and broke dormancy in early August. It's currently sending up another fifteen-foot tall leaf.

So when will it bloom again? Nobody knows. Every titan arum has its own personality. It may bloom again in two years or it may not bloom again for another decade. Only time will tell. You can follow the bloom's progress last summer and see a lot of pictures by going to the Titan Arum daily blog at **http://www.eiu.edu/~biology/news/titan_arum.htm**

New Faculty Spotlight: Kai "Billy" Hung

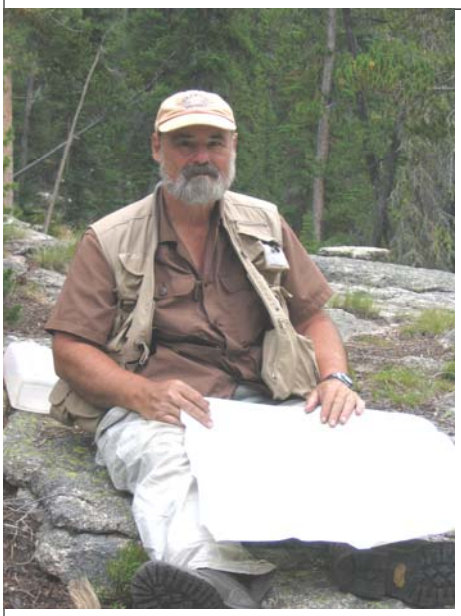
Dr. Billy Hung received his Bachelor of Science degree with High Honors in Genetics (*summa cum laude*) from the University of Georgia in Athens in 1997. As an undergraduate student, he worked with Dr. Phil Youngman on the sporulation pathway of *Bacillus subtilis* and on the aggregation phenotype of *Bacillus thuringiensis*.

At the University of Wisconsin at Madison, where he received his Ph.D. in Genetics in 2004, he studied root growth responses to gravity and other surface-derived stimuli using the model plant system *Arabidopsis thaliana* in Dr. Patrick Masson's laboratory. Dr. Hung then entered the laboratory of Dr. Charles W. Kaspar in the Department of Bacteriology at the University of Wisconsin at Madison as a Post-Doctoral Researcher. His project as a post-doc focused on acid tolerance response in pathogenic *Escherichia coli* O157:H7, as well as extremophiles, including archaea and fungi, that thrive in highly acidic environments. In January 2008, Dr. Hung became Assistant Scientist to Dr. Charles Kaspar and Dr. Amy Wong, and his research interests expanded to include the role of motility in biofilm formation of *Bacillus cereus*.

Dr. Hung's teaching duties at EIU currently include Introduction to Microbiology for majors, Cell and Molecular Biology Laboratory, as well as a graduate seminar in Bioinformatics. Next year he will probably add Cell and Molecular Biology as well as Environmental Microbiology to the roster. He is also interested in developing a Bioinformatics class in the next year or two.

Dr. Hung's research focus at EIU will be to employ molecular, genetic, and physiological techniques to understand extremophilic organisms that thrive in acidic environment, as well as exploring the beneficial interactions between plants and rhizobial microbes.

Dr. Chuck Costa retires



I'm honored that you have asked me to say a few words about Dr. Charles Costa (i.e. Chuck) as I can say without reservation, that Dr. Costa was the signal most positive influence on shaping my career. Moreover, this mentorship has grown into a much cherished friendship over the last two decades.

I met Chuck when he came to EIU in August 1987 and I had just begun my Master's degree program. I was assigned as Chuck's TA for his new graduate Cell Physiology course. Given limited resources in the Zoology department at the time, it was quite a challenge to build a current cell and molecular based laboratory from the "ground up". Dr. Costa and I worked nights and weekends to run through each laboratory to make sure everything was in place (including some supplies that Chuck bought out of his own pocket) for the new course. Certainly, witnessing this type of dedication has had a lasting impression on my own career; although I wouldn't like my students to compare me to Chuck (as I would surely fall short), I do attempt to model my approach to my observations of Chuck while a student at EIU. Indeed, to this day, Dr. Costa stands out as one of the best lecturers I have ever had, or seen. This data set includes my six years at EIU, five years at Univ. of Missouri, five years at Oregon Health Sciences Univ., and nine years at Illinois State Univ.

Chuck has also played a critical role in my development as a research scientist. As a member of my Master's thesis committee, Chuck was a constructive critical voice when we would discuss experimental design and data interpretation. His brutally honest evaluation of both my oral and written communication of my results went a long way in preparing me for my PhD program in the Medical School at Missouri. It was Chuck's critical eye that I continued to exploit throughout my career. During my PhD and Postdoctoral work, I maintained contact with Chuck and would bounce him drafts of manuscripts and grants to seek his comments. It was this continued academic and personal relationship that enabled us to become scientific collaborators once I returned to Illinois (at ISU). I was fortunate to have Chuck take a sabbatical my first year at ISU and come here to help me establish my laboratory. Having a senior colleague help "kick start" my career was a blessing that resulted in a significant publication (Costa et al., *Journal of Biological Chemistry*, **278**, 9176-9184, 2003) and subsequent grants from the NIH and NSF. Chuck and I continue to collaborate and just co-authored another manuscript that has just been accepted to *Archives of Biochemistry and Biophysics*.

In conclusion, I would like to wish Dr. Costa a happy retirement and thank him for everything he has done to shape my career, and I am sure, the careers of several other students. I would just like to take this opportunity to assure Dr. Costa that although he may physically be on a beach sipping a margarita or snatching a cut-throat trout out of a high mountain lake, intellectually he will be contributing to academia in every lecture I give and every manuscript I publish. "Chuck you are so woven into my own persona that I don't exactly know where you stop and I begin, but I do know that I'm better for it." Thank you!

Your student, mentee, colleague, and friend,

Craig

Dr. Craig Gatto (Illinois State University)

EIU's List of Distinguished Alumni Includes Botany Graduate

This year's class of Eastern Illinois University Distinguished Alumni includes a 1966 graduate in Botany. Dr. Kenneth Damann is a Louisiana State University professor in plant pathology and crop physiology whose work focuses on fungi that prey on corn and produce a highly carcinogenic toxin that has been linked to liver cancer.

A Charleston native, Damann was recognized during the EIU Alumni Association awards dinner as part of this year's Homecoming festivities. A 1962 graduate of Charleston High School, Damann earned a master's degree from the University of Arkansas in 1968 and a doctorate from Michigan State University in 1974. That same year, he joined the faculty in the Department of Plant Pathology and Crop Physiology at LSU.

Damann spends much of his time researching fungi that make aflatoxins – one of the most carcinogenic of all naturally occurring substances. These fungi are known to affect corn, cotton seed, peanuts, and tree nuts. It is most commonly seen in corn grown in the south from Texas to North Carolina.

He and his research team are experimenting with another naturally occurring fungus that does not make aflatoxins. When applied to a field, these benign fungi compete with the toxigenic forms and suppress them, both in the soil and on the plants themselves. His work is supported by the Louisiana Soybean and Grain Research and Promotion Board and a partnership with researchers in Thailand.

Damann and his wife, Catherine, live near the LSU campus in Baton Rouge. They have four children and three grandchildren.

Congratulations to our 2008 Scholarship Winners

Gayle Hutton Adkins Award-	**Amanda Hance**			
Charles B Arzeni Tropical Biology Award-	**Bryan Rolfson**			
Altamont Lions Club/Ernie C. Ballard Award-	**Amber Goeckner**			
Burgner Memorial Scholarship-	**Anderson McGilliard**	**Stephanie Shepherd**	**Jessica Turner**	
	Amanda Steber	**Monica Genta**	**Mahwish Yousaf**	**Cassi Moody**
Charles and Ferne Tingley Compton Botany Scholoarship-	**Nikki Pisula**			
Kenneth & Donelda Damann Award in Aquatic Ecology-	**Amanda Steber**			
Leonard & Olga Druham Award in Environmental Biology-	**Cassie Moody**			
Embarras Valley Quail Unlimited Award -	**Natalie Morris**			
Heath Sports Medicine Scholarship-	**Donovan Johnson**			
Barrie & Shirley Hunt Environmental Biology Award-	**Cassi Moody**			
Verne & Edna Kniskern Scholarship-	**Mahwish Yousaf**			
Eugene Krshbiel Scholarship-	**Ashley Roxas**			
Hugh C. Rawls Award-	**Jessica Turner**			
Walter Merrit Scruggs Scholarship-	**BreAnne Nott**			
Ernest Stover Scholarship-	**BreAnne Nott**			
Errett/Mazie Warner Award in Botany-	**BreAnne Nott**	**Nikki Pisula**	**Amber Goeckner**	
E. Warrner/L. Durham Award in EVB-	**Cassi Moddy**	**Monica Genta**		
E. Warner/P. Hinz Pre-Med Award-	**Megan France**	**Cory Penn**	**Brian Morrell**	
E. & M. Warrner Award in Biology-	**Amanda Steber**	**Alyssa Boynton**	**Lydia Bjornbak**	

Study Abroad: Ethnobotany in China

Pictured from left to right: Elizabeth Levenda, Brett Hash, BreAnne Knotts, Isaac Klaus, Lynette Gayden, Brendan Hughes

In May, 2008, Eastern's first faculty-lead, Study Abroad course in Asia provided six students the opportunity to spend three weeks in China. The course was taught by Biological Sciences faculty Dr. Zhiwei Liu and Dr. Gordon Tucker. With support from the College of Sciences, and more than two years of planning, the trip went off rather smoothly. The course, entitled *Ethnobotany in China*, was inspired by two of the department's existing courses, Ethnobotany and Plants and Civilization. Biological sciences majors can take the course as an elective and students from other majors can use it as a senior seminar. The course provides students with many excellent opportunities to observe and experience Chinese uses of plants for food, medicine, and other purposes. In addition to visiting national parks and cultural sites, students experienced the diversity of Chinese cuisine.

The adventure began with a 12-hour flight over the North Pole to Beijing. Several days were spent in Beijing at a hotel near the Forbidden City. Students visited the Great Wall, Drum Tower, Beijing Opera, and had some time on their own as they adjusted to a new culture and country.

Next, the class traveled south by rail to Hunan Province. While we were en route, a devastating earthquake hit Sichuan Province, several hundred miles to the west. After checking into the hotel in Zhangjiajie, we learned about the earthquake, and e-mailed worried family and friends to let them know we were okay. We visited Zhangjiajie National Forest Park (a World Heritage site), and several cultural sites. Then we traveled by train to Jishou, where we were guests of Jishou University. Our students again had the opportunity to interact with Chinese students, as we visited farmers markets, a kiwi fruit farm, traditional and modern pharmacies, and toured the university campus, where we heard lectures on medicinal plants of Hunan, and our faculty lectured to Chinese students about their research. We concluded our time in western Hunan with a visit to the ancient town of Fenghuang, including two boat rides and a visit to a citrus orchard.

Dr. Liu and Dr. Tucker examine cultivated grapes in Hunan.

We next spent several days in Changsha, where we visited an arboretum, tea markets, and the university. We had day trips to Shaoshan, the hometown of Chairman Mao, and the sacred mountain at Nanyue. The last site included a hike through cloud forest, where we saw the Asian relatives of many familiar plants, such as ash, oak, maple, fir, spicebush, dogwood, and hornbeam.

We returned to Beijing by rail and then flew back to the U.S. The students were very positive about the experience, and the course will be offered again from May 12 to June 3, 2009. Further information (and lots of pictures) can be found at the course website, **www.ux1.eiu.edu/~zliu/ethnobot.htm**.

EASTERN ILLINOIS UNIVERSITY

DARWIN DAYS 2009

DR. TIMOTHY BERRA (OHIO STATE UNIVERSITY)
"CHARLES DARWIN: THE CONCISE STORY OF AN EXTRAORDINARY LIFE"
SUNDAY, 2/8/2009, 7:00 PM, COLEMAN AUDITORIUM (RM 1255), COLEMAN HALL

DR. TIMOTHY BERRA (OHIO STATE UNIVERSITY)
"CHASING NURSERYFISH AND AVOIDING CROCODILES IN NORTHERN AUSTRALIA"
MONDAY, 2/9/2009, NOON, BUZZARD AUDITORIUM (RM 1501), BUZZARD HALL

DR. JOHN WAGNER (DARWIN IMPERSONATOR, FIELD MUSEUM OF NATURAL HISTORY, CHICAGO)
"A CHAT WITH CHARLES DARWIN"
MONDAY, 2/9/2009, 5:00 PM, LIFE SCIENCES BUILDING (RM 2080)

DR. MICHAEL ZIMMERMAN (DEAN OF THE COLLEGE OF LIBERAL ARTS AND SCIENCES, BUTLER COLLEGE)
"THE CLERGY LETTER PROJECT: THE EVOLUTION – CREATION CONTROVERSY: WHY IT MATTERS"
TUESDAY, 2/10/2009, 7:00 PM, COLEMAN AUDITORIUM (RM 1255), COLEMAN HALL

FILM: *"KANSAS vs. DARWIN"* (AWARD-WINNING FEATURE DOCUMENTARY ABOUT THE 2005 KANSAS SCHOOL BOARD HEARINGS ON EVOLUTION).
WEDNESDAY, 2/11/2009, 4:00 PM, LIFE SCIENCES BUILDING (RM 2080)

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