

## A Note from the Chair, Dr. Andrew Methven

### Alumni and Friends of the Department of Biological Sciences:

The department has recently completed a search for a microbial cell biologist who will join the faculty in Fall Semester 2008 and teach microbiology and cell and molecular biology. The College of Sciences is currently interviewing candidates for a Science Education position to replace Dr. James McGaughey who retired in August 2007. The successful candidate will direct the Science with Teacher Certification and the M.S. in Natural Sciences programs and teach the *Methods of Teaching Science in High School* (BIO 3400) for students planning to teach high school science.

*Biology Forum* (BIO 1150) was added to the core requirements for all majors in Fall Semester 2007. This course is designed to provide freshmen majors with an overview of career paths, research and internship opportunities, study abroad and the keys to success in the Biological Sciences. The department has also enhanced study abroad opportunities for majors through the implementation of a new course in the Bahamas (BIO 3888G, *Subtropical and Marine Ecology*), and is planning to implement an Ethnobotany course in China during Summer Term 2008.

More than 100 undergraduate and graduate students participated in research and internship opportunities in the last year. This includes five undergraduate students who successfully completed Honor Theses and graduated with departmental honors as well as thirteen graduate students who completed and defended Master's thesis projects.

Eleven projects designed by undergraduates were partially funded through an Undergraduate Research Fund developed by the Department of Biological Sciences. Many graduate students applied for and received internal and external grants to support their research. Thirteen graduate students received Research/Creative Activity Awards from the Graduate School to provide financial incentives for outstanding graduate student research projects that partner with external agencies to foster the improvement and development of new creative ideas. A majority of these undergraduate and graduate students gave oral and poster presentations at state, regional, national and international meetings and a significant number were co-authors on peer-reviewed articles in scientific journals. In support of their travel to scientific meetings, two undergraduate students received Scholars in Undergraduate Research

( S U R E )  
awards and  
three gradu-  
ate students  
received  
Graduate Stu-  
dent Investi-  
gator Awards (GSI) from the College of Sciences and fifteen graduate students received Williams Travel Awards from the Graduate School.



Not only have undergraduate and graduate students participated in research and presented papers at scientific meetings, but they also have received numerous awards for their efforts. In the last year, four undergraduate or graduate students won best oral or poster presentations at these meetings. In addition, two students received Young Botanist Awards from the Botanical Society of America and two students received awards from the Illinois Nurseryman's Association. Finally, one of our graduate students, Elizabeth Fincel, received the Distinguished Master's Thesis Award from the Graduate School. Many of these students have been accepted into some of the finest graduate and professional schools in the country while others have gained employment soon after graduation.

Dr. James McGaughey retired in August 2007. Jim brought his wealth of experience as a high school teacher into the classroom at Eastern in 1991 and helped transform the Science with Teacher Certification and M.S. in Natural Sciences programs into their current form. We are proud of all that Jim accomplished during his tenure at Eastern and pleased that so many of the students he mentored are now teaching high school biology throughout the state. Jim and his wife, Cathy, continue to reside in Villa Grove where they can spend time with their children and grandchildren.

The saddest news I have to share is passing of three former professors Dr. Zeno Bailey, Dr. Verne Kniskern and Dr. Garland Reigel. They influenced countless numbers of students during their careers at Eastern and the department mourns their passing.

I hope all is well with you and your families. Best wishes for a happy and successful 2008.

# Retired professor wants students to become passionate

By Rachel McConnell

When James McGaughey first started teaching at Eastern in 1990, a snake house used to sit just north of the greenhouse. Now, the snake house is gone, and McGaughey retired at the end of summer 2007.

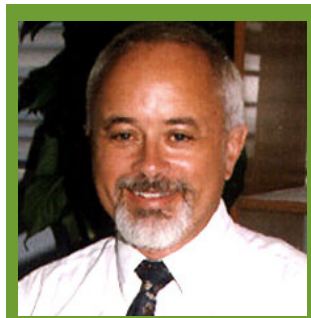
As a college student, he hadn't planned to be a biology professor. However, after a stint as a high school teacher, McGaughey was encouraged to look into a professorial role by the high school's superintendent.

Looking back, he has no regrets.

"Que será, será," McGaughey said. "I'll never know what would have happened if I took another path. This one has been good to me. I taught some wonderful students and made some really great friends with the faculty."

One of his favorite classes to teach was an environmental microbiology graduate class that was filled with sciences teachers working on their master's degree. He also enjoyed teaching biology methods 3400 classes, where the students were preparing to leave and teach.

"It was fun to see them as I had once been, just preparing for the real world," said McGaughey.



*Jim McGaughey has been a biology professor at Eastern since 1990.*

When they can, Eastern faculty members "go the extra mile" for their students, he said.

McGaughey served as student teacher coordinator for the undergraduate and post-baccalaureate students in biology, chemistry and physics. He is also coordinator of the master of science education in biological sciences program.

cal sciences program.

Even though he is retiring, McGaughey would like to see the biology department to get a new building. The major has outgrown the current building, which was meant to house 200 majors. Now the department has more than 600.

His parting advice for students?

"First and foremost, go to class," McGaughey said. It's important to just be in class.

Get out and meet people on campus, and take the iPods out of your ears.

"I sat out in the garden by the science building and watched the students walk by. About seven out of ten students were on their phone or listening to an iPod," he said.

He said when you take them out it gives you the chance to meet people, and you never know who you'll meet or when that contact might come in useful.

Even though he's retiring, McGaughey plans to visit his friends in the biology department. He tells his faculty friends, "Get the students to become passionate. If you do that then you've done your job."

## Don't look in the office; look outside, in a lab or in the greenhouse

By Danielle Scott

If anyone is looking for Dr. Janice Coons, her office may not be the best place to check. Instead, she can be found in either the greenhouse, lab or outside.

Coons started her college career at Eastern where she received her Bachelor's Degree in botany. Two years later, Coons completed her Master's Degree in horticulture at the University of Arizona. To complete her education, Coons attended the University of Wisconsin-Madison where she received a doctorate in horticulture and botany.

Before joining the biology department at Eastern in 1989, Coons gained experience by working for two institutions of higher education. She gained experience in research at the University of California-Davis as a postdoctoral researcher. She also taught and researched vegetable crop physiology at the University of Arizona.

Dr. Coons' research deals with the reproductive biology of threatened or en-



*Janice Coons can often be found outside in the greenhouse. She is researching reproductive biology of threatened or endangered plants.*

dangered plants, tall-grass prairie species and sand prairie species. She uses field surveys, greenhouse studies, and lab or growth chamber studies to research topics that she finds interesting.

Her research demonstrates factors that will help greenhouse producers become more economically profitable.

Dr. Coons works with Ms. Nancy Countant, Mr. Brent Todd and Dr. Henry R. Owen to research if current factors limit the development of plants, according to "Threatened and Endangered Plant Research" on Eastern's Web site. Their research has been presented at professional meetings including Environmental Horizons, the Illinois State Academy of Science and the Botanical Society of America.

Besides working with other professors Dr. Coons said, "I always involve students in the research, including undergraduates and graduates." Students learn all aspects of research projects including designing, collecting and analyzing data, and presenting the material.

# Graduate students study mice for cure of Alzheimer's



*Above: Kris Yoon hopes that experimenting with mice while at Eastern will lead to a cure for Alzheimer's one day.*

*Left: Steve Clark stands by some of the instruments he uses for his research.*

## Kris Yoon

*By Carlnice Robinson*

Graduate assistant Kris Yoon is hoping that experiments with mice on Eastern's campus may lead to a cure to Alzheimer's one day.

Yoon is working under biology professor Dr. Britto Nathan, who has been doing research on Alzheimer's for several years. Yoon is doing a study on how neurons in mice are affected by estrogen.

"When people get Alzheimer's, they lose neurons in the brain," Yoon said.

Neurons in the brain and the nose of the mice increase when the experimenters add estrogen.

"If we can get neurons to grow back in humans, maybe we can do something with those neurons in the future to prevent Alzheimer's disease or other disease as well," Yoon said.

Yoon did his undergraduate work at Loyola University, where he mainly did text book learning. Here at Eastern he has taken advantage of hands-on experience by becoming a teacher assistant and a researcher.

"It's a lot of work, but a good experience," he said.

Biological sciences have always been an interest of his from as far back as he can remember. Yoon's future plan is to become a medical doctor or a medical researcher. Being a researcher now has given Yoon a chance to get a better understanding of his future career.

Dr. Nathan will combine Yoon's, and his six other lab partners', findings for this study to be published.

## Steve Clark

*By Dana Puziss*

He works long hours researching and studying how age affects neuronal growth and the main focus of his research is Alzheimer's and the study of the olfactory system.

Steve Clark graduated from Eastern in 2006 with a Bachelor of Science in Biological Sciences degree. Dr. Britto Nathan, Clark's research adviser, had him in his neurological biology class Clark's senior year and offered him a graduate

student position in his lab upon graduation. In May, Clark will walk the stage with a Master of Science degree.

"He's a great student, he's self-motivated, hardworking and he is clear on where he is going," Nathan said.

Clark and six lab partners test mice to discover how to maximize neuronal growth in order to help the brain regenerate as it once did. They study the proteins involved to determine their specific functions and hope to learn what happens to nerve regeneration potential as people age.

"What it takes is to have a good boss, you've got to have someone who is intelligent and appreciates hard work," Clark said. "A lot of us use the same techniques, so we'll talk with each other to see what works and what doesn't work."

"He is very knowledgeable," said Kris Yoon, Clark's lab partner. "He's done a lot of work in this lab so I know if I have any questions I can ask him."

Clark plans on getting his doctorate's after he graduates in May and wants to learn clinical skills for becoming a clinical doctor. He enjoys studying his specific interest in biology and state that "neurology is the future of medicine."

# For the love of botany: Reaching out to students through plant research

By Cory Dimitrakopoulos

New biological sciences faculty member, Barbara Carlsward, has a passion for teaching and that is just what the department is looking for.

"[We] look for candidates who can connect with students on a personal level, who are energetic and enthused and who can engage graduate and undergraduate students in research. Dr. Carlsward excels in all of these," said Biological Sciences Department Chair Dr. Andrew Methven.

Carlsward, who has a bachelor's degree in physics and master's degree in botany, and worked on her botany Ph.D. at the University of Florida and California Santa Barbara, says the most rewarding part of teaching is when the students are genuinely interested in and make a connection with the subject.

"Seeing that students get the material is exciting," Carlsward said. "It's nice when they are really interested."

Long-time partner and colleague of Carlsward, Richard Abbott, a doctoral candidate in the botany department at the University of Florida, also recognizes her

enthusiasm of teaching.

"For me, Barbara represents a rare subset of professors, not just because she is good at what she does, but because she is able to maintain her love of teaching," Abbott said. "She continues making the effort to reach the students, draw their interest and explain the relevance [of the subject]."

Before coming to Eastern this year, Carlsward worked on a post doctorate at the University of Florida. The University of California, Santa Barbara, was where Carlsward said she began to enjoy teaching because she had free reign of the plant anatomy, plant morphology and general botany labs.

She also teaches a paleobotany course and a plant anatomy course.

"I like that the class sizes at Eastern are so small. The labs I taught [at University of Florida] were 60-150 students which can be very impersonal," she said. "My biggest class now is 24 students. It's just a lot nicer



*Botany professor Dr. Carlsward gets her hands dirty as she gives the extra effort while teaching.*

to teach."

Carlsward is currently working on research with the assistance of an undergraduate student. The two are researching the comparative petal anatomy of *Maxillaria*, an orchid genus. She is also working on post doctorate research on pollen and stamen morphology.

Carlsward has an optimistic view of her future as a teacher at Eastern. "I hope to get better and keep improving. I hope to keep up on the literature; science changes and we have to keep up with it. And I hope to still be as excited [about teaching] as I am now."

Methven agrees, "She is developing into an excellent teacher."

## Research, seminars, presentations and published articles: Accolades go to an accomplished professor

By Kathleen Kidwell

Dr. Gary Bulla is a biology professor at Eastern and has been for the past five years.

Bulla teaches a variety of biology concentrations—general biology to advanced molecular and cellular biology.

In his spare time, Bulla researches Type 2 diabetes, a type of diabetes that typically starts affecting people when they are 40 or 50 years old. He studies mechanisms controlling gene expression and development in mammals. Diabetics have gene expression that is turned off impulsively.

According to his Eastern Web site, Dr. Bulla has three areas of interest within his research: how activation and silencing of

hepatic gene expression work, the connection between hepatic gene expression and cellular response to signaling molecules, and the part that hepatic transcription factor mutations play in the development of diabetes.

Bulla's passion for his profession are reflected in his recent honors and awards. In 2004 at Eastern, he received the Achievement and Contribution Award for outstanding contribution to the university, the Graduate Dean's Award of Excellence and the Panhellenic Faculty Member of the Month in October.

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*Dr. Gary Bulla's honors and awards show his passion for his profession.*

# Liberal arts educator shows commitment, wins award

By Jennifer Gritti

Being recognized as an official spokesperson for Eastern's liberal arts education is quite an accomplishment. For Dr. Ann Fritz, it's just a part of her job.

On Aug. 28, Fritz was awarded 2007 Faculty Laureate.

In order to achieve this honorable title, the university recognizes those who are committed to bringing liberal arts education to the classroom.

Fritz implements writing, critical thinking and problem-based skills in all her classes.

"It's not just memorizing," Fritz said. "That is not what thinking like a scientist is all about."

These skills will not only help students do better in school, but will prepare them to use the practical skills learned for future careers and everyday life.



*Provost Blair Lord (right) awards Dr. Ann Fritz the 2007 Faculty Laureate. Fritz is only the second biological sciences professor to achieve this honor.*

Fritz works closely with students to help set and direct goals during their college careers at Eastern.

"I try to teach students skills they need to be a learned person after college," Fritz said.

Fritz's colleagues—who recognized that she had emphasized writing and critical thinking in all of her classes—nominated her for the award. After a review by the Counsel of Academic Affairs, Fritz was awarded Faculty Laureate.

She modestly spoke saying, "I was honored to just be nominated."

After winning the award, Fritz gave the fall Convocation speech welcoming incoming freshmen to campus, building on their excitement in beginning their studies.

"It was a fun activity because I got to welcome all freshmen and transfer students to the campus," Fritz said. "I enjoyed it."

Fritz joined the biology faculty as tenure-track faculty member in 2001.

Biological sciences has had two Faculty Laureates out of the ten named. Fritz is the second for the biology department. Bud Fischer also received the honor in 2000.

## Studying science: EIU courses and professors lend to alumnus' passion

By Hannah Plevka

Since high school, Dr. Matt Gilg has known he wanted to study science.

Gilg, a 1996 graduate of Eastern, is currently a professor at the University of

North Florida and spends his time studying speciation and interactions between closely related species.

The experience with the faculty at EIU is how he chose his field. He always knew he wanted to study biology, but did not know the specific area he wanted to concentrate on.

"Interacting with my adviser, Kipp Kruse, and with one of my committee members, Bud Fischer, instilled a passion for evolutionary ecology," Gilg said.

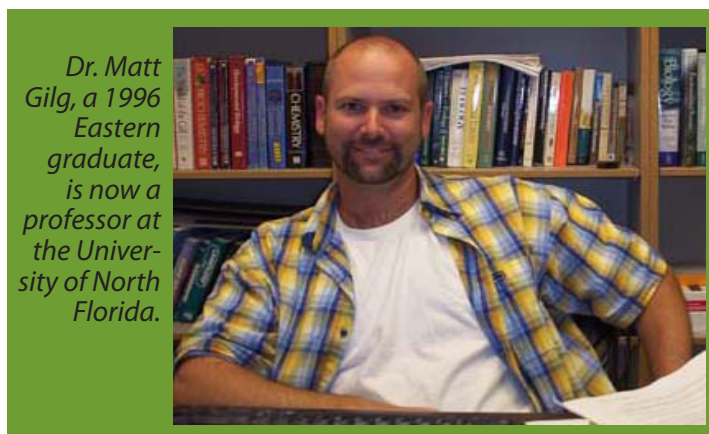
Investigation speciation is the process by which populations become

reproductively isolated. Gilg explains it as "looking at the genetic divergence between populations of an insect species that develops on three different species of host plants, the maintenance of populations of pure species of mussels even when they reproduce with each other and competitive interactions and habitat isolation in species of salt marsh fishes."

He is starting several projects on a marine invasive species in Florida where he is attempting to identify the patterns of its introduction, its current distribution, its reproductive cycle and its dispersal patterns.

"I have very fond memories of EIU," Gilg said.

He said had a great times with the other graduate students and faculty where they worked and played together. Behavioral ecology with Kruse and life history evolution with Fisher were two courses that changed his perception of biology.



*Dr. Matt Gilg, a 1996 Eastern graduate, is now a professor at the University of North Florida.*

# Students take educational trip, spend time in the Bahamas

By Barbara Harrington

Unique organisms fascinate Samantha Adams, but it wasn't until May when she took Subtropical and Marine Ecology that she had the chance to come face-to-face with some of the most odd and exotic animals below the sea.

"I was in my own world, seeing amazing fish and organisms just hanging out in their natural habitat," Adams, senior biology major, said. "I was expecting the trip to be really pretty, but there are no words to express the beauty of what I saw."

Subtropical and Marine Ecology was offered during the four-week summer session for the first time this past summer. The course was co-taught by Dr. Eric Bollinger and Dr. Paul Switzer.

For Adams, the highlight of the course was the one-week trip to Forfar Field Station on Andros Island in the Bahamas.

Bollinger said students snorkeled, allowing them to explore different types of reefs. The students were able to compose digital field guides by taking pictures of organisms with underwater cameras, identifying them and making natural history notes. The students then presented their best pictures to one another.

Students also worked on

a group research project during the four-week course. Among the research topics chosen were hermit and ghost crabs.

Bollinger said the students also examined the diversity of invertebrates in calcareous algae that grows on reefs.

Although the course may seem intense, Bollinger said there are no prerequisites. "Subtropical and Marine Ecology" is considered a general education class. However, Bollinger said almost all the students enrolled this past summer were pursuing a degree involving biology.

Bollinger said examining organisms up-close and in their natural habitats enhances learning.

"It's hard to understand things if you never really experience them," Bollinger said. "It's hard to know what a tropical, subtropical environment is like if you haven't been there. It'd be like trying to understand what the Spanish culture is without visiting Spain."

Bollinger said another trip is planned for this summer.



*One week of the four-week subtropical and marine ecology was spent at the Forfar Field Station on Andros Island in the Bahamas. Students were able to explore and identify different types of reefs by snorkeling.*

## Department mourns passing of three influential retired professors

• Zeno Bailey, Ph.D.

• Verne Kniskern, Ph.D.

• Garland Reigel, Ph.D.

# Biological sciences building undergoing renovations

By Paul Krzus

Renovations on the biological sciences building started last year. One project is finished and four more are ready for renovation on the east end of the building.

Last year, construction started to create a new research lab for faculty interested in botanical sciences research. The renovations included new tabletops, cabinets, equipment and the creation of an area for graduate students to work and to collect research. Dr. Barbara Carlsward, a plant anatomist, Dr. Andy Methven, a mycologist, and Dr. Scott Meiners, a plant ecologist, use the new lab.

Renovation of the anatomy room will be

another project. A new state-of-the-art ventilation system will be installed along with new lab benches, chairs and a technology-enhanced classroom. Bud Fischer, professor and associate chair of the biological sciences, said, "It will be a top-notch teaching laboratory."

The reconfiguration of the stock room is another project. The stock room will be updated with new chemical cabinets and vents that will lead the substances' fumes directly outside.

The herbarium will also be updated. New vents and a heating and cooling system will be installed to make sure that plants are at the correct temperature and

humidity levels.

The final renovation will be the animal holding facility. New vents, heating and

“It will be a top-notch teaching laboratory.”

—Bud Fischer

cooling systems, and a sealed floor will be installed. These renovations will ensure that all animal care codes are met. Renovations are planned for completion within the next 18 months.

## Prairie restoration becoming a growing interest in Illinois

By Danielle Scott

Prairie restoration is a growing trend in Illinois.

Restoration projects help professionals and volunteers grow prairie plants through a step-by-step look at the development of the plants.

According to Eastern's prairie restoration Web site, restorations project leaders— Dr. Janice Coons, Nancy Coutant, Dr. Ken Robertson and Brent Todd—are working with a group of people to demonstrate how prairie plants develop.

The project leaders created a garden where researchers can track the development of various prairie plant species. These species include *Baptisia alba* and *Thaspium barbinode*. Throughout the year, the

researchers record information and take photos of each development stage for each species.

A prairie restoration project begins with the collection of seeds in the fall. Although identification may be difficult, researchers have created a Web site to help with plant identification.

The Web site shows step-by-step instructions for individuals to develop prairie plants. Digital photos allow individuals to see how these plants look throughout development.

Researchers stated on the prairie restoration Web site that "eliminating competitive weedy species is important in promoting prairie plant establishment." To have successful prairie plants, researchers need to identify plant species from weeds.

"This information is useful for people involved with prairie restoration as it will help them to recognize fruits when collecting seeds, distinguish prairie seedlings from weed seedlings and provide information for how to grow [prairie plants]," Coons said.

Collection sites have been set up across Illinois according to the acknowledgements section of the prairie restoration Web site. Coons, Coutant and Robertson collected some material on their property.

More information about starting a prairie restoration project can be found by visiting [www.eiu.edu/~prairie/](http://www.eiu.edu/~prairie/).

Researchers have provided identification and progress information from their projects.

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Bulla takes after his father, who was also a biologist. However, he says it was an undergraduate course in microbiology that heavily influenced his interest in biology.

He graduated from Colorado State in Fort Collins, Colo., with a Master's degree in microbiology. He went on to get his doctorate from the University of Colorado in Denver, where he conducted his research on viruses, the Hepatitis B virus in particular. He did his post-doctorate work at a can-

cer institute in Seattle. And though it took him five years to finish his post-doctorate work, Bulla said he really enjoyed his time there because he did research all day.

After finishing his post-doctorate study, he worked at Saint Louis University in St. Louis as a professor.

After five years at Eastern, Bulla has no intention of leaving. He says he likes the small, friendly, college town environment because it is a change of pace from the bigger cities he is used to.

Bulla enjoys his work because the balance between research and teaching is

good since the university makes them both a high priority. "This type of job is fulfilling because you get to research new issues that are stimulating, but you also get to teach and help the next generation find their path."

Bulla has been honored several times for his hard work conducting seminars and presentations, his published articles as well as his research.

For a complete list of Bulla's accomplishments, visit [www.eiu.edu/~biology/personnel/bulla.htm](http://www.eiu.edu/~biology/personnel/bulla.htm).

[www.eiu.edu/~biology](http://www.eiu.edu/~biology)

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