



Biology Department
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GREENHOUSE IS A FUTURE POSSIBILITY by Nathan Chatham, Senior Biology Major



Greenhouse

A GREENHOUSE BUILDING PROJECT is in the planning and fundraising stages for the Biology Department at Union University. This facility would offer a multitude of benefits to the school and our students. First, a greater diversity and quantity of plant life can be grown for both research and teaching purposes. This will increase the specimens available for classes dedicated to plant

life and allow professors greater opportunities for hands-on learning when covering certain material. The addition of a greenhouse also opens the possibilities for new classes to be included in the curriculum such as plant physiology and plant pathology.

Current and future research projects would also benefit from the addition of a greenhouse. At the moment, plants that are required for research are grown under artificial light in different areas of the Biology Department. Danielle Blackstone, a biology major at the beginning stages of her research with mahogany plants, acknowledged that a greenhouse, "would have made starting this research much easier by providing a large and controlled space for my plants to grow."

The greenhouse is planned to be built along the east side of White Hall located outside the current zoology/botany lab room. Current plans include a 24' by 24' main room dedicated to the actual

growing of plants, and a 12' by 24' head-house dedicated to the mixing of soil and storage. Air filters will be included to provide a controlled atmosphere for the plants. Access to the greenhouse will be granted to professors, student researchers, and students in plant-related courses.

At the moment, there is not a scheduled date for construction to begin. Dr. Mark Bolyard, Biology Department Chair, is currently working with the Development Office to develop a strategy to obtain funding for this project. Once funding is obtained, the construction will proceed.

If you are interested in making a contribution toward the greenhouse or for any other project or piece of equipment, please visit our "housewarming" page (www.uu.edu/advancement/giving/biology.cfm) or contact the Biology Department directly.

DEPARTMENT OF BIOLOGY NEWSLETTER

VOLUME 3.1 | FALL 09



Buteo jamaicensis

CHAIR'S CORNER



Mark Bolyard

Well, we're about to wrap up Fall '09 and exciting things continue happening. At the top of the list are our two new faculty members, Dr. Jennifer Gruenke and Dr. James (JR) Kerfoot. Dr. Gruenke was hired to teach our expanding course in Immunology, and she will also teach Cell Biology as well as other courses. She received her Ph.D. from the University of Virginia and taught at Patrick Henry and Bluefield colleges before coming to Union. We'll provide more of an introduction to Dr. Gruenke in an article in an upcoming issue. More information about Dr. Kerfoot can be found in a "Faculty Profile" article in this issue. We are thrilled to have both of these new colleagues on board.

One other adjustment for our department is the leave of absence taken by Mrs. Smith during this academic year. Mrs. Smith continues to care for her husband Bill, who is making slow but steady progress in a nursing home following a stroke in June, 2008. We certainly miss Mrs. Smith, but we

know she is where God has called her to be at this time in her life. Please continue to pray for Mr. and Mrs. Smith.

Another transition for Biology faculty has been the use of Blackboard, a web-based teaching aid. By the end of the year, all faculty will have gone through at least basic Blackboard training. Part of the motivation for the university to utilize this technology is to provide opportunity for education to continue if faculty members have to be out or if the university has to close temporarily (remember February, 2008?).

We are also anticipating some structural changes, as described in articles in this issue as well. Renovations are underway to provide (in part) infrastructure for more lab-based sciences at our Germantown campus. We are also in the very early stages of discussions regarding the construction of a greenhouse, which was part of the original vision for White Hall.

This fall, we implemented a new format for Homecoming. Rather than hosting our traditional Friday evening open house, we joined the "Under the Big Top" event on Saturday morning under a tent on the Great Lawn. Several faculty members greeted visitors as Dr. Huggins showed off an Eastern Screech Owl, and we invited people to participate in an interactive tour of White Hall. Inside, we had four interactive labs, including allowing participants to select slides to display magnified on a flat screen TV, interacting with human anatomy models, experiencing the spread of virtual diseases by human contact, and watching high speed digital video of fish predator-prey interactions in the wildlife lab. It was very well attended, and the kids especially seemed to enjoy it. Next year, we hope to see even more Biology alumni.

I want to encourage you to continue to keep in touch with us. A number of you have returned our Alumni Survey (thank you!), but we would love to hear from the rest of you as well. The survey (see the "Update Alumni Info" link in the sidebar of our homepage, www.uu.edu/dept/biology) also gives you an opportunity to let us know if you would like to receive the newsletter electronically. We are enjoying a great, busy 2009-2010 school year, and we look forward to hearing from you very soon!

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ALUMNI PHOTOS

A reminder: Please visit our website at: <http://www.uu.edu/dept/biology/>. We have a Flickr site with lots of photos, and we'd love to have you send any photos of your time here at Union to the Biology Department for inclusion in our collection. Photos can be sent to Mrs. Tuns electronically (etuns@uu.edu) or by snail-mail (Biology Department, 1050 Union University Dr., Jackson, TN, 38305). Additionally, if you are a Flickr member, we invite you to add comments and details on the pictures that have already been uploaded.

FACULTY PROFILE
by Beth Lee, Sophomore Biology Major



Dr. James R. Kerfoot

FROM HIS FIRST DAY AS A TEACHER at Union University, Dr. James Kerfoot has been described among students as “the teacher who almost killed a mouse during Anatomy and Physiology.” This accusation, despite constant repetition by freshman A&P students, is not true. Dr. Kerfoot merely gave students an incentive to answer a question correctly. If a student answered correctly,

Marvin the mouse would not be diced in a blender. If the answer was wrong... well... no one ever found out. The blender was never plugged in! Even so, he got everyone’s undivided attention that day.

Along with his new, innovative teaching methods, Dr. Kerfoot has added a fresh face to the Biology Department of Union. He joined the faculty after getting his Bachelors (doing undergraduate research with Dr. Bolyard) and Masters degrees from Southern Illinois University Edwardsville, and he has recently defended his Ph.D. dissertation at Florida Institute of Technology. With him, he brought his wife, Adina, and two daughters, Moriah and Reece.

Dr. Kerfoot did much of his graduate research in the Florida Everglades, emphasizing fish ecology, dealing primarily with invasive fish species. However, Dr. Kerfoot recalls an occasion when he was asked to work with alligators. His response? “I hope they’re baby alligators.” Today, Dr. Kerfoot is continuing

the research that he recently defended in his doctoral dissertation which deals with invasive species of fish and how temperature may affect their ability to disperse in their introduced range.

Even with his doctoral preparation, full-time teaching job, and family, Dr. Kerfoot is interested in participating in research at Union and in Tennessee in general. His idea for a project consists of locating and studying non-native species in Tennessee and examining their effect on humans and the environment. If a new species can thrive in Tennessee, what is it that allows it to succeed in its new environment? Does the species interact negatively or positively with the native species with which it comes in contact? Does it have any effect at all? Or of even greater concern, what effect will these species have on the future of Tennessee if allowed to remain unhindered? The Biology department looks forward to Dr. Kerfoot pursuing this research alongside undergraduate researchers.

ALUMNI PROFILE
by Kayla Hauss, Junior Biology Major



Dr. Jennifer Carter-Johnson

DR. JENNIFER CARTER-JOHNSON graduated from Union in May of 1996 with a double major in Biology and Mathematics. In 2003, she received a Ph.D. in Microbiology from the University of Virginia. While in graduate school, she decided that she was more interested in the impact that science has on society than in conducting scientific research, so after gradua-

tion she went to law school, and in 2006, she received a J.D. from the University of Michigan Law School. From 2006 to 2008, Dr. Carter-Johnson practiced intellectual property law with an emphasis on patent licensing and biotechnology business start-ups in Seattle, WA with Perkins Coie LLP. Since 2008, she has been teaching Biotechnology and the Law, Patent Law, and first year Property Law at Washington University School of Law in St. Louis, MO. Dr. Carter-Johnson’s research interests revolve around the ways in which society regulates scientific research, both from an intellectual property/business perspective, as well as from an ethical perspective. She is currently in the market for a tenure track position at a law school. When asked if she felt prepared by Union while attending graduate school, she replied, “I have always felt that Union University gave me a very firm foundation on which to grow after Union. I have attended graduate school with students from some of the premiere universities in the country

and never felt outclassed.”

Regarding her future in biology, Dr. Carter-Johnson would like to become a voice in the legal community for scientists. She said there are troubling attacks on scientific research and discourse from businesses that only see the financial bottom line, and she would like to help others look beyond the immediate financial gains promised by science to see the larger picture of how best to fund and direct scientific progress for the good of all people. There are many advancements in science that Dr. Carter-Johnson hopes to see in the future, such as providing better health care by curing diseases, growing algae to provide bio fuels, and growing new drought-resistant crops to diminish hunger in third world countries.

Dr. Carter-Johnson currently lives in St. Louis, MO with her husband of three years, Jeff. They would love to start a family and look forward to the time when God grants them this desire.

FACULTY PROFILE
by Augusta Paffrath, Senior Biology Major



Dr. James Huggins

DR. JAMES HUGGINS, University Professor of Biology, has taught at Union for the last 23 years. His interest in Biology started at a young age. He was always interested in God’s creation and how the natural world works. Ultimately, it was his neighbor, a veterinarian, who fueled his love for the biological sciences. His interest in veterinary medicine led him to Arkansas State University, where he received his bachelor’s degree in Animal Science. During his Bachelor’s program, he discovered that vertebrate biology was his real passion. Dr. Huggins continued on at Arkansas State for his Master’s degree and later completed his Ph.D. at

the University of Memphis.

Although Dr. Huggins originally intended to concentrate on research as a career, he soon saw the rewards and impact teaching could have not only on his life, but also on the lives of students. Teaching offered more flexibility for him to fully utilize his God-given talents to influence others. When reminiscing on his teaching career, he jokingly said, “When I first started teaching, I looked as young as my students, so one of my favorite things to do on the first day was to walk into class and sit with the rest of the students who would tell me how difficult they had heard the teacher was. Most of those I had drawn into conversation were more than a little embarrassed when I walked to the front of the room to begin class.” Dr. Huggins’ passion and enthusiasm for teaching has not changed over the years. He says that “if it is biology, I love it,” and this semester alone, he is teaching Wildlife Biology, Microbiology and Human Gross Anatomy.

Currently, Dr. Huggins operates a wildlife rehabilitation and education center here at Union University that focuses primarily on the rehabilitation of injured raptors and on education focused on these beautiful birds of prey. Housed near the northwest part of the Jackson campus, injured animals are exposed

to minimal human interaction and are rehabilitated to be introduced back into the wild. Although this project focuses mainly on hawks and owls, other animals have been taken in as well. Animals that cannot be fully rehabilitated are used as study aids for some of his Conservation Biology courses and in other educational venues.

On Union’s campus, Dr. Huggins is very active with current and prospective students and has mentored many students in undergraduate research projects. He is currently working with students on determining the caloric values for prey items of the red-tailed hawk, the examination of owls for the presence of the parasite *Toxoplasma gondii*, and determining the home range and homing abilities of the eastern box turtle.

Dr. Huggins has done additional study in biology at the University of Tennessee at Memphis and at the Raptor Center at the University of Minnesota. Beyond his scientific endeavors, Dr. Huggins has taken courses at Mid-America Baptist Theological Seminary and is presently pastor at Unity Baptist Church near Henderson, TN. Dr. Huggins’ passion for teaching, ministering and developing relationships with students is evident in his work, and he is truly an inspiration to those who know him.

GERMANTOWN RENOVATION



Refurbished Germantown Classroom

YOU MAY NOT HAVE KNOWN IT, but Union has had a campus in Germantown (on the southeast side of Memphis) since 1997. Union offers courses leading to degrees in Nursing, Business, Education, and Organizational Leadership. Union’s Biology department offers courses on the Germantown campus in support of the Organizational Leadership program (Survey of Biological Concepts) and Nursing (Survey of Microbiology, Anatomy and Physiology I & II, and Pathophysiology). The classroom in which these courses are offered has recently undergone renovation, including the addition of floor plugs to facilitate better equipment use by students, a corner sink, and the installation of additional cabinets with coun-

tertops. We continue working to make more materials and equipment available for the lab components of the courses we offer. We are in the process of moving a set of microscopes to the Germantown campus to allow more students to work with these instruments. Dr. Marc Lockett was our most recent full-time faculty member to serve on the Germantown campus, but we were able to bring him to the Jackson campus in 2007 to help meet the growing student demand. It is our hope to be able to provide another full-time faculty member on the Germantown campus in the near future, but in the meantime, we have wonderful adjunct faculty who are doing a great job teaching the classes there.