This past January, the Biology Department offered two new courses during the Winter term, marine biology and ornithology. These courses sparked excitement among biology students, including the nine who enrolled in these companion courses. Dr. Andy Madison, associate professor of biology, led the ornithology course and Dr. James Kerfoot, assistant professor of biology, led the marine biology course. The students spent two weeks in the classroom learning through a series of alternating lectures from each instructor. The courses culminated with a 2-week road trip along the East coast of Florida and Melbourne, Florida. Throughout the trip included the Okefenokee swamps, dune communities and beaches. The students had a unique opportunity to view at least 50 manatees. After returning from the trip, the class was able to identify birds and understand marine animals. The courses are going to be offered again this winter. Learn more about these courses, which are offered in part off-campus, in an article in this issue.

Chair's Corner

Greetings from the Biology Department! We are excited to start the 2010-2011 school year, with even more exciting developments taking place. First, although we were not able to hire our two new faculty members during our searches last spring (which we hope to carry out again this year), we were able to hire Dr. Jim Mahan as a Visiting Associate Professor. Dr. Mahan is working with Dr. Huggins to teach the graduate Gross Anatomy and Anatomy and Physiology courses, which is a huge help. We were also able to hire Dr. Huggins’ wife, Mrs. Cathy Huggins, as a full-time Laboratory Instructor (learn more about Mrs. Huggins in an article in this issue). Mrs. Huggins’ primary responsibility at this point is to teach our Microbiology labs, allowing Mrs. Elsie Smith to return to teach the Microbiology lectures. We are excited to see Mrs. Smith around the department each week! Update: Mrs. Smith fell early in November and broke her kneecap, but is recovering well! Please keep Mrs. Smith and her husband in your prayers. We have also been able to hire a new departmental Secretary, Mrs. Wendy Williams, who you will meet in this issue as well.
During a fourth-year medical school and unique lessons and opportunities. Central Asia; each trip provided new West Africa, Southeast Asia, and el Salvador. Over the years, she has abroad including her first medical trip Sciences Center. Despite this busy degree from Union, Dr. Scarbrough went on to attend medical school at said not only provided her outreach as a high school student. received the call to international medical Dr. CATHIE SCARBROUGH (photo, left) by Nathan Chatham ALUMNI PROFLIE by Nathan Chatham WENDY WILLIAMS is one of the newest additions to the "White Hall Family" and is working as the Administrative Assistant with the Biology and Chemistry departments, and most recently has added duties in the School of Nursing. Wendy is an alumnus of Union University, studying Music and Psychology while she was here as a student. Wendy graduated in December of 2008 and married her high school and college sweetheart, Blake Williams, in April of 2009. Blake and Wendy are members of a local church, All Saints Anglican, where they sing in the choir. Both of them were members of University Singers while at Union. One interesting fact about the couple is that while in Singers, they were blessed to tour France with the choir. While in Paris, Blake proposed to Wendy on the Eiffel Tower, and of course, she said yes! The newlyweds have made their home in Jackson with their two Cardigan Welsh Corgis, BB and Lily. Both Wendy and Blake have a love for animals and are hoping to eventually show their dogs in confirmation, obedience and agility. Blake is a member of Best Buy’s “Geek Squad” and loves working with computers. Wendy is thrilled to be a part of the Union Community again and feels a sense of completeness by working in such a loving, Christian environment.

WENDY WILLIAMS

Dr. MARK BOLYARD, PROFESSOR and Chairman of the Union University Biology Department, is supervising several students involved in research projects with distinct subject matter. Dr. Bolyard’s doctoral research on the biotechnolgy of bloodstream coagulation and his post-doctoral research dealing with plant tissue culture and genetic engineering, Dr. Bolyard’s interests have led him into various research endeavors allowing biology students at Union to expand their horizons and choose projects of interest. In cooperation with another professor, Dr. Marc Lockett, Dr. Bolyard is working with undergraduate researcher Carson Rider on a project involving the bacteria Escherichia coli. This team is using engineered bacteria to observe blood clotting factors (thrombin and Factor X) and their inhibitors. They have modified the green fluorescent protein (GFP), found originally in some jellyfish) to form a substrate for the two clotting enzymes. This will allow them to evaluate the effectiveness of different clotting inhibitors that might be present in a wide variety of hematophagous (blood feeding) organisms. The results are measured by observing the amount of glow remaining after the addition of inhibitors to a reaction containing the GFP and clotting enzyme. If an inhibitor is present, thrombin or Factor X will not cleave the fluorescent substrate protein and the glow will remain. Union University’s new fluorescence microscope will be an important tool for this research.

Another project currently underway at Union deals with plant tissue culture of African mahogany. This project was inspired by a south Sudanese friend of Dr. Bolyard’s. African mahogany trees are commonly found in this area. Dr. Bolyard is supervising Danielle Blackstone, a senior biology major (pictured), in the attempt to regenerate African mahogany trees from leaf tissue. Tissue culture is a process that causes plant cells to “lose their identity” followed by the growth of the cells until they have regenerated into tissues necessary to cultivate a new plant. The regeneration process for the mahogany trees has begun and the leaf tissues have formed a “callus” (a mass of undifferentiated cells), which is typically the first step in regeneration. If successful, this project could provide information for a reforestation project that could have a beneficial economic impact in south Sudan. Dr. Bolyard’s most recent project was inspired by his short term mission work in Lithuania. He is collaborating with a Lithuanian graduate student, Jonas Ziuks. Ziuks and his advisors have sent samples of an unidentified bacterium found in the European aspen cultures to Dr. Bolyard and Carrie Moore, an undergraduate research student. Experiments will be performed to determine the identity of the bacterium and once known, the results may prove useful to Ziuka’s studies.

By participating in these three projects under the supervision of Dr. Bolyard, Union students are getting significant exposure to the opportunities of biological research, as well as experience for their future careers in the field.