

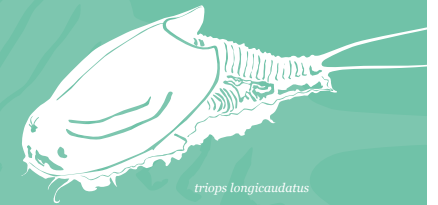


Biology Department
1050 Union University Drive
Jackson, Tennessee 38305



DEPARTMENT OF BIOLOGY NEWSLETTER

VOLUME 2.1 | Spring 08



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CHAIR'S CORNER



Mark Bolyard

Welcome to the second edition of our Newsletter. As you might guess, every aspect of our program in the Biology Department has been impacted by the tornado that ripped through the campus on February 5. While White Hall suffered minimal damage to the roof, the campus schedule has been altered, and our courses are being offered at different times than were scheduled originally. Lots of changes have taken place across campus, and I encourage you to visit Union's website to keep track of how the larger University is managing the damage. It is actually quite amazing!

In spite of the tornado, exciting things continue to happen in our department, and I want to share some of them with you. As we told you in the first Newsletter, we are now fully moved into White Hall, and the last of our equipment arrived at the end of January. Recently, we installed our large autoclave, bomb calorimeter, inverted microscope, a

water purification system, and a microplate reader, as well as hoods for plant and animal cell culture. We are making great strides in improving the equipment that is available for teaching laboratories and for joint student-faculty research projects.

These joint projects received a much needed "shot in the arm" with a grant from the Dean of the College of Arts and Sciences, Dr. Gene Fant, to pay for food for Student-Faculty Scholarship Lunches. During the first Fall meeting (in addition to eating pizza!), Dr. Madison shared with about 20 students the Department's vision for projects in which students would have the option of joining faculty in their ongoing research. Students also would continue to have the option of identifying a faculty mentor to help them with a project of their own design. In this edition of the Newsletter, we highlight past student research projects in a conversation with Dr. Wofford, who directed the student research course sequence, recently turning that responsibility over to Dr. Madison. We also held a Faculty Scholarship Lunch, during which the faculty met to talk about their own ideas for research projects. A number of collaborative ideas resulted from this discussion. Recently during Spring Semester we invited the students enrolled in the first research course (Biology 425) to lunch as the faculty shared their ideas for joint projects with students.

Another exciting development for the Biology Department is the advent of Union's School of Pharmacy. We look forward to having the privilege of continuing to train Biology students who have an interest in Pharmacy, and to developing relationships with the Pharmacy faculty as they arrive on campus.

Finally, we have some bittersweet news. Our beloved Mrs. Sherry Crossett is retiring from Union after 16 years of service. We will miss her, but we know that she has other exciting things in store for her. We have included an interview with her in this issue of the Newsletter, and look forward to introducing you to her replacement in the Fall.

Thanks to those of you who contacted us in response to our first Newsletter, and we hope you all will pay us a visit the next time you are in Jackson. Please consider putting Homecoming '08 on your calendar and plan to come see us in November!

Department News: Website Update by Tsega Temtem



White Hall

The various changes around the Biology department have brought with them a need to improve an essential communication tool – the departmental website (<http://www.uu.edu/dept/biology/>). About a year ago, the Biology faculty decided on this undertaking to provide a more current de-

piction of the Biology department, while also updating to more recent technology. The outdated pictures and information have been replaced with new links that highlight each of the new concentrations, as well as a homepage for each faculty member and the courses they teach. Current research projects are included on the website, along with award updates, recent departmental news, the impact of Union University's new pharmacy program on the biology department, and an informative page for frequently asked questions. The biology student organization, BIOME, also has an updated page that includes information on the organization, as well as membership and contact information. An additional feature will be an archive of the departmental alumni newsletter for easier access to previous issues. According to Dr. Madison, the main purpose is to showcase the department for prospective students with an interest in the biological sciences, as well as to regularly update news and schedules to keep students and alumni informed on recent developments

in the department. The department also has maintained its "housewarming" website (<https://www.uu.edu/advancement/giving/biology.cfm>), although given the recent damage to Union's campus, you may feel led to contribute to the greater rebuilding efforts of the campus. We in the Biology Department encourage you to do that. Your support, to the university or the department, is a big encouragement to us. It indicates that you are still interested in what is happening at Union, and that you are part of the team. We have also enjoyed your feedback from our first Newsletter, so any way that you choose to reconnect with the Biology Department is greatly appreciated.

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DID YOU KNOW?

Union University has a new bequeathment program?

Union University has a state and federally approved wildlife rehabilitation facility specializing in raptors?

Hammons Center for Scientific Studies is now open on the 3rd floor of White Hall!

For questions concerning the Hammons Center, Wildlife Rehab Program or Bequeathment Program please contact Dr. James Huggins at 661-5144.

Biology is ranked #4 among top college majors?

HOMECOMING FALL 2008

All Biology Alumni are invited to Attend:

Biology Department Homecoming Reception

Date: Friday, November 7, 2008

Time: 6:30 PM

Location: First Floor of White Hall, Room 112

For questions please contact:
Dr. Mark Bolyard, Biology Departmental Chair
(731)661-6586 or
e-mail mbolyard@uu.edu

FACULTY PROFILE
by Hunter Stepp



Mrs. Cheryl Crossett

Mrs. Cheryl Crossett has been a member of the Department of Biology for the past 16 years, overseeing a number of the biology laboratories taught at Union. Primarily focused on freshman biology lab (for majors and non-majors), Mrs. Crossett's teaching has long been a cornerstone for students pursuing a degree in biology.

She attended Union University, receiving a B.S. in Biology (1974), and she received an M.S. in Education from Western Kentucky University. Prior to becoming a professor at Union, Mrs. Crossett taught high school biology at a Christian school in Alabama and at Stuttgart American High School in Stuttgart, Germany. She came to Union in 1992 as a laboratory Instructor, and in 1999 was promoted to Assistant Professor of Biological Laboratories. She since has made Union her home and has been a great encouragement to both her students and her colleagues. When asked what she was leaving behind, she responded with tears.

"I don't think I am a person who leaves legacies, I just like to think that I have shown my students and friends that you can be a Christian out in the world and live that walk daily, be it with colleagues or students. Because of the relationships I've made here I feel that no matter what I encounter, I have friends there for me." After 16 years of service to the

Union family, Mrs. Crossett has made an impression on every student she has encountered. When asked for a message to leave behind for her students and colleagues, she responded, "I heard a pastor speak not too long ago on finishing the race set before us, the race that Paul speaks of in the Bible. I feel that I have finally run the race that God had set before me here at Union, and now it is my time to move on. However, times have not always been easy. There have been times when all I wanted to do was give up and throw in the towel, but we have to keep running the race that God has set before us. We have to run until he opens the closed door in front of us. The road will always have bumps, but you have to push through it."

Anyone who has ever met Mrs. Crossett knows that she has always kept running the race, and now as she leaves us—her family away from home—we all wish her the best in every endeavor she takes on.

ALUMNI NEWS
by Danielle Blackstone : "Life After Union"



Tristan Abair and daughter Briley

As a Biology Major at Union University, Tristan Abair was presented the Outstanding Biology Research Award for her research as an undergraduate student her senior year. She graduated from

Union University in 2001, but where is she now? What is she doing, and how has her time at Union affected her today?

After graduating from Union, Tristan attended Vanderbilt University in Nashville, Tennessee, to obtain her doctorate in cancer biology. She did her doctoral dissertation research on integrins, which are extra-cellular binding proteins on cells that allow communication, and tumor angiogenesis. Angiogenesis is the formation of blood vessels. She said that, "in order for tumors to grow and metastasize, angiogenesis has to occur." Since blood vessels are made up of endothelial cells that are controlled by integrins, she found in her research that the expression of the integrin alpha 1 on endothelial cells leads to collagen-dependent cell adhesion, migration, tubulogenesis (formation of vessels within organs), and proliferation. She continued her research by identifying the specific regions of the integrin alpha 1 responsible for each of these functions in the endothelial cells.

After graduating from Vanderbilt, she began working for Physicians' Education Resource where she is a medical writer specializing in breast cancer. She writes content for publications and review articles and multimedia projects. She also prepares powerpoint presentations for use in Physicians' Education Resource sponsored meetings.

Tristan said that she loves what she does and that Union was very instrumental in her success both at Vanderbilt and at her job now. She went on to say that "the biology and chemistry departments provided a solid scientific background that allowed her to excel in the midst of graduates from Ivy League schools." Union allowed her to develop her critical thinking skills and her faith which has impacted her work and relationships with colleagues.

Tristan is married to Jacob. They have a one-year old daughter, Briley, and they reside in Nashville, Tennessee.

RESEARCH FOCUS
by Kenneth Lewoczko



Research

One of the unique aspects of the biology program at Union is the process of engaging students in undergraduate research. For many years now, every biology major that has graduated from Union has performed original research on some subject, whether that be the behavioral characteristics of gorillas, wildflower characterizations, or the testing of potential antimicrobial agents. From the spring of 1989 through the spring of 2007, Dr. Wayne Wofford was the biology research coordinator, guiding over 300 students through their research projects. Now, Dr. Andy Madison is acting in this role, and together with the new department chair, Dr. Mark Bolyard, a new and different research process is emerging. This article will look at the undergraduate research process in the recent past, give

an overview of the current state of affairs, then look ahead to the changes that are envisioned for the biology research process in the future.

When Dr. Wofford began teaching the research class in 1989, biology students took a two-credit hour class in which they wrote a research proposal, did their actual research, and prepared a research paper, all in one semester. One of Dr. Wofford's first changes was to break the research sequence down into a series of one-hour classes over the course of three semesters, allowing students more time for research projects which often could be rather extensive. Also, students began giving oral presentations on the results of their research projects, allowing the entire biology department to become aware of students' work. At outside scientific meetings, four students won awards for their research presentations, and in 1998 Dr. Wofford started the Outstanding Biology Research Award for student presentations given at Union. As the research program expanded, Dr. Wofford and several students were able to collaborate with the Tennessee Department of Environment and Conservation in a stream survey project that ran from 2004 - 2006.

Currently, although Dr. Wofford has turned over the undergraduate research process to Dr. Madison, he still is involved in research that not only includes science but goes beyond it as well. As an avid participant in the dialogue between faith and science over the years, Dr. Wofford's latest project is the compilation of a "Faith and Science Bibliography." As the literature on this subject increases every month, the enormity of the task facing an individual trying to study this topic is increasing. Thus, this bibliography is an effort to organize science and faith literature efficiently, and plans are underway to make it to be accessible from the Union website.

As Dr. Wofford continues with his endeavors, Dr. Madison now coordinates undergraduate research. In the past, students developed their own research ideas and often worked in relative independence; however, that is changing to more of what Dr. Madison calls a "graduate school model." Under this system, professors conduct ongoing research projects in their particular areas of expertise and research students identify a segment to work on within the overall project of a particular professor. This will allow more in-depth research projects to be pursued and increase the likelihood of both students and faculty publishing their work. However, such ongoing research projects will require more funding than previous efforts. To address this need, Dr. Madison's goal is to actively pursue external funding. This should provide students with more opportunities for in-depth projects at Union University.

BIOME
by Melissa Ratliff

BIOME, Biologists In Observation of the Master's Earth, is an on-campus organization for any students interested in biology.

BIOME is led by president Ashley Hamilton, a junior Biology major, vice president /treasurer Sarah Conway, a junior Chemistry major, secretary Tsega Temtem, a junior Biology major, public relations representatives Missy Ratliff and Danielle Blackstone, and senators Hunter Stepp, Kent Willis, and Don "Buddy" Seibert. Dr. Andy Madison serves as the faculty advisor.

The four main purposes of BIOME are (1) to provide a group for students with similar interests and struggles

to network, develop friendships, receive accountability, and fun, (2) to provide an atmosphere in which students and faculty can relate outside of the classroom, (3) to create a professional organization through which students can develop better leadership skills and become better prepared for professional schools and the future, and (4) to attain a greater appreciation of our Creator, Jesus Christ.

Each of these purposes is attained through our monthly meetings and events. BIOME events are aimed at strengthening student fellowship, scholarship, and teacher-student relations. These events range from shaving cream softball and

pizza to seminars from university professors to community service opportunities.

With the vision and hard work of an excellent president and faculty advisor, BIOME has enjoyed an exciting year. We have had great turn-outs at events, with high levels of student participation. BIOME has been a great opportunity for personal growth and networking and we hope it will continue to flourish for years to come.