

bioNOTES



Fall 2004

Volume 2 Issue 1

Welcome to your alumni newsletter

Here it is, the second issue of BioNotes! I first want to welcome our newest alumni, graduates of the class of 2004. BioNotes is a way for the Department of Biology to maintain contact with former students of every graduating class. Why? First, after faculty members build relationships with individual students over your four (more or less!) years at William Jewell, we like to know what you're achieving in your professional and personal lives. Second, by being informed about what is happening currently in the Department of Biology, you may be inspired to give back in some way—by mentoring a student, giving a career or research seminar, or helping fund a research project. Finally, we hope to inform you of news from one another. It can be difficult to keep in touch with your classmates, so the newsletter is a medium by which you can be updated about your peers.

In order to achieve these goals, I need your help. If you have any news you want to share with the department, including a change in mailing or e-mail address, please see the third page for contact information. Also, if you know of an alum that is not receiving the newsletter and should be, help us get in contact with one another. We plan to publish the newsletter once each semester on the William Jewell College website to save printing and mailing costs. Please consider sharing your e-mail address with us. Your e-mail address will provide us the best way to let you know when the newsletter is available.

I hope everyone enjoys the newsletter. As always, the Department of Biology is changing and evolving—look inside to learn more details and to meet the class of 2004 graduates.

– Anne Nickel

Farewell to a Friend



At the center of the first floor hallway of White Science Center between the biology faculty offices and the chemistry faculty offices is the BioChem office area. Sitting on top of the bookshelf in this room are pictures of the leaders of the Department of Biology from the past 110 years. H. Merritt Richmond. Clarence J. Elmore. Leland J. Gier. Burt L. Wagenknecht. A new picture is about to be added to this lineage of great leaders...Judith A. Dilts.

After 29 years of teaching at William Jewell, Dr. Dilts is retiring, but she's not hanging up her lab coat just yet. Beginning October 1, she will be the Associate Dean for the College of Science and Mathematics at James Madison University. JMU is a state university located in Harrisonburg, Virginia, in the Shenandoah Valley. As Associate Dean, Judy will be working on faculty development, career mentoring for young faculty, and will continue with her research. She also hopes to teach one course a year in order to remain in touch with students and issues that faculty face in the classroom. Judy's retire-

ment and move to another university came as a surprise to most faculty, students, and alumni of WJC—it's hard to imagine the Department of Biology without Judy! But Judy says "I took the job at JMU, not because I wanted to leave WJC, but because I needed new challenges and I was excited by the challenges at JMU." One of the challenges she's looking forward to facing is designing programmatic ways of helping faculty members, in the context of a university, set and attain their personal and professional goals.

Without doubt, Judy has left her mark on the Department of Biology and the college as a whole. Not only has she touched the lives of students taking general biology, zoology, genetics, and microbiology for 29 years, but she has instigated change in the way biology is taught and has brought student-led research to the forefront of education across the disciplines. Although her achievements are too numerous to fully detail, here are some of the ways she has impacted William Jewell:

- implemented the senior thesis program in 1987 so that every biology major participated in undergraduate research

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- built a strong biology department by hiring strong teachers, fostering relationships among colleagues, and creating networking opportunities outside the Jewell community
- created a Pre-Med Advisory Committee which has been recognized as a model for guiding students through their preparation for and application to medical schools
- led in creating strong general education programs and teaching in the Oxbridge Honors Program
- was central in envisioning and gaining credibility for the building of a new science facility (White Science Center)
- guided biology faculty to provide hands-on investigative research in every biology lab course.

With the departure of Judy comes change in the personnel of the Department of Biology. Dr. Dan Heruth has been named the new department chair for a period of 3 years. Look for the "Featured Faculty" article in this newsletter to find out more about Dr. Heruth. Dr. Scott Falke has been hired as a visiting professor for one year. Dr. Falke received his Bachelor of Science in Biology from UMKC in 1998 and his Ph.D. in Biochemistry from the University of Kansas School of Medicine in 2003. During the last year he has worked as a post-doc at KUMC studying the structural effects of calcium activation on phosphorylase kinase and the structural effects of protein-substrate binding to the CPN60-class chaperonin. Dr. Falke will be teaching Microbiology, Biological Diversity and Design, and a General



Dr. Scott Falke

Education course, "Emerging and Re-Emerging Disease."

William Jewell will not be the same without Judy, but the Department of Biology is already working hard to build on the achievements and leadership that she exhibited. One day, Judy hopes to return to Liberty to fully retire and perhaps be a Professor Emeritus. Until then, you can contact Judy at diltsja@csm.jmu.edu or 175 Elk Lane, McGaheysville, VA 22840. She says, "Keep in touch and come and visit!"

Undergraduate Research

Undergraduate Research is a central theme in the lives of biologists at William Jewell. Every biology and biochemistry major participates in research, selecting from a variety of research groups led by the biology and chemistry faculty. In the last newsletter, the Paramecium group and Terrestrial Ecology group were highlighted. This edition features the medically oriented projects offered in the Vascular Smooth Muscle group.

Cellular Physiology of Vascular Smooth Muscle

Dr. Tara Allen, Justin Kahlich, Brian Gillenwater, and Stephanie Bock

Vascular smooth muscle (VSM) is the primary cellular component of the arterial vessel wall, and mediates changes in and maintenance of blood pressure. Many pathophysiological diseases such as atherosclerosis have marked vascular complications, such as plaque build-up, which occludes the blood vessel and prohibits proper blood circulation. One principle component of the atherosclerotic plaque is

VSM; however, the role of VSM in the formation and/or maintenance of the atherosclerotic plaque is not completely understood. Therefore, it is possible that alterations in VSM apoptotic rate and/or metabolism may play a role in contribution of VSM to the formation and/or maintenance of the plaque or in the etiology of other diseases, so my research lab concentrates on two questions.

The first project (fatty acid induced apoptosis) is important because VSM make up a substantial contribution to an atherosclerotic plaque and if they undergo apoptosis (regulated form of cell death) this could destabilize the plaque leading to rupture. A rupture of a portion of the plaque could lead to blockage of smaller arteries downstream causing disruption of blood flow possibly leading to a heart attack or stroke. It has not been demonstrated that fatty acids induce apoptosis in VSM however; fatty acids do induce apoptosis in cardiac muscle cells in culture. The goal is to determine whether this same phenomenon occurs in VSM, and if it does to characterize

which fatty acids cause apoptosis.

The second project deals with the role of fatty acid-binding proteins in the membrane that transport fatty acids across the plasma membrane allowing for fatty acid uptake by cells. It has been shown that there are proteins in the membrane that facilitate transportation of fatty acids across the membrane. Several studies (in cardiac and skeletal muscle) have shown that alteration in the level of these fatty acids binding proteins result in alterations in fatty acid metabolism. Therefore, current investigations are aimed at studying fatty acid binding proteins in VSM.

Our students have been very successful in the undergraduate research program. If you would like to be a part of the success of future students, you may contribute to the Department of Biology and designate your gift to Undergraduate Research.

New additions

Senior biology, biochemistry, and chemistry majors presented their undergraduate research last April 19th and 21st for faculty and students. Congratulations to the following biology, biochemistry, and Oxbridge majors on your recent graduation and acceptance into post-baccalaureate programs:

Erin Barr: St. Louis University School of Optometry

Stephen Deglman: University of Missouri Kansas City Dental School

Ben Martin: University of Missouri School of Medicine

Shannon Prather: Baylor University (Ph.D.)

Nicole Switzer: University of Missouri Kansas City Dental School

Adam Westfall: University of Missouri Kansas City Dental School

Lindsay Wiegel: University of Missouri, School of Education

We also congratulate those graduates who obtained job placements:

Jessica Franklin: Research Associate at IBT Reference Lab, Overland Park KS

Erin Ryan: Research Assistant at KU Medical Center



Pictured above l to r, back to front are senior students who presented their research April 19, 2004: Stephen Deglman (Biochemistry), Micaela Rostine (Biology), Alyssa Bell (Oxbridge Ecology and Systematics), Jenni Slater (Chemistry), Evan Gillespie (Biochemistry), Erin Ryan (Biochemistry), Jessica Franklin (Biology), Carmen Brock (Biochemistry), and Erin Barr (Biology).



Pictured above l to r, back to front are senior students who presented their research April 21, 2004: Nicole Switzer (Biology), Brianna Middleton (Biology), Adam Westfall (Biology), Ben Martin (Biology), Shane Remley (Secondary Education), Lindsay Wiegel (Biochemistry), Shannon Prather (Oxbridge Molecular Biology), and Sarah Staton (Chemistry).

Featured Faculty Member



Dr. Dan Heruth

Dr. Dan Heruth has been a part of the Department of Biology for 9 years. Before coming to Jewell, he earned his Ph.D. in 1988 from the University of South Dakota School of Medicine, and then worked as a post-doc at the University of Rochester in Rochester, New York, and at The Children's Mercy Hospital in Kansas City. During his career at Jewell, Dr. Heruth has expanded his teaching repertoire and now can be found instructing courses in Biology, General Education, and Oxbridge: Cell and Molecular Biology; Molecular Genetics; The Responsible Self; DNA: Politics, Law and Ethics; Intro to Cell and Molecular Biology; Bioinformatics; Genes; and Molecular Biology Synthesis. What brings Dr. Heruth back to our department year after year? "First and foremost, the students," said Dr. Heruth. "I love interacting with them, watching them learn and watching them develop their talents and reach their goals. Secondly, my colleagues. The biology faculty have a relationship built upon mutual respect and a shared vision of educating the next generation of scientists. Along with the chemistry faculty, we have established challenging curricula that engage students in the learning process."

As with every biology faculty member, Dr. Heruth is actively involved in undergraduate research. "My research goals are tied closely with my teaching goals of helping students to understand and experience the process of science," said Dr. Heruth. "There are two simple reasons why I believe strongly that biology students should perform an independent research project: 1) scientists perform research, and 2) research is one of the best methods to engage students in the learning process." To facilitate that learning, Dr. Heruth leads three research groups that investigate microbial evolution and symbiosis, the molecular mechanisms of aging, and the molecular genetics of colon

cancer. Through this research, students learn to apply the concepts and techniques of microbiology, molecular biology, genetics, biochemistry, cell biology, bioinformatics, and functional genomics.

Dr. Heruth is now embarking on a new endeavor following the retirement of Dr. Judy Dilts—Chair of the Department. Dr. Heruth states that "As chair, I'm really interested in talent development for both the students and the faculty. I'm interested in building upon our foundation of inquiry-based learning to push all of us to develop our talents to their fullest potential. Dr. Dilts established a successful undergraduate research program. I think we owe it to both Dr. Dilts and to our students to continue to utilize research as the ultimate teaching tool." Dr. Heruth also sees alumni as an important element of our students' education. He would like for the biology department and alums to form a partnership to create learning opportunities for our students. "As you think of ways in which you would like to contribute to the educational opportunities of current and future students, please contact me and we can discuss how we might establish new partnerships." Dr. Heruth can be reached at heruthd@william.jewell.edu.

tell us
about it

If you have any news to share with the Biology Department, please contact **Anne Nickel** at:

Box 1038
William Jewell College
500 College Hill
Liberty, MO 64068

Phone: (816) 781-7700 x.5662

E-Mail: nickela@william.jewell.edu

Alumni News

Janet Paper ('96) was accepted into a Ph.D. program in Plant Biology at Michigan State University.

Aaron Best ('96) is an assistant professor in the Department of Biology at Hope College in Holland, Michigan.

Jennifer Tune ('00) was accepted into the Master's and Credential in Mathematics and Science Education program at the University of California-Berkeley.

Adam Todd ('00) was accepted at the University of Kansas School of Medicine.

Stephanie Fiedler ('03) was accepted into the Ph.D. Interdisciplinary Graduate Program in Biological Sciences at the University of Kansas Medical Center.

Lindsey Gronewold ('03) was accepted at the University of Health Sciences College of Osteopathic Medicine.



500 College Hill
Liberty, Missouri 64068
www.jewell.edu

