



The Department of Biological Sciences

The University of Delaware

December 2006

Greetings from the Chair

The faculty, staff and students of the Department of Biological Sciences extend our best wishes to you and would like to update you on departmental news. This year has been particularly exciting and witness to major accomplishments on all fronts. We are grateful to our alumni/ae who continue to be generous in your donations. This support has allowed us to continue programs and pursue new initiatives. Many of our undergraduate and graduate students received local and national awards for their accomplishments highlighting the great environment here at UD.



Karla Boyd

This year's Milton Stetson Undergraduate Research Fellowship to an outstanding undergraduate researcher was given to Karla Boyd.

This award reflects the dedication of Dr. Stetson, a former professor, department chair and highly regarded researcher, to undergraduate research. An anonymous donor again provided funds in support of the Graduate Student Publication

Excellence Award awarded to Benjamin Rohe, M.S.



Benjamin Rohe

Taylor who is retiring this year. Dr. Taylor served as Associate Chair of the department and has been a great educator, researcher, mentor and colleague. An event is planned to celebrate his many years of service to the campus.

Finally, I want again to express our thanks for the generosity of our many alumni/ae. In addition to the programs described above, a critical new effort will be the establishment of several endowed Professorships to recognize our most accomplished faculty members. You can be a major and lasting part of these traditions by your contributions, large or small.

Information on how to donate is included both later in this Newsletter as well as at our web site: <http://www.udel.edu/bio/>. Please browse the site for news and to see some familiar faces!

Daniel Carson
Trustees Distinguished Professor and Chair
Department of Biological Sciences

Undergraduate research continues to flourish and we were delighted to learn that the Howard Hughes Medical Institute funding for this program was renewed this year. We congratulate Drs. Usher and White along with all of the fantastic students and mentors who have made this program such a big success. Many of the students in this program have gone on to pursue careers in biological research or attend medically-related professional schools. Their research experience is a key component of their professional portfolio. We are equally proud of the success of our graduate program. Not only does it boast more than 70 full time students, but also it contains multiple students who have been recipients of competitive training grant support from various agencies to support graduate studies. These students have presented their work at numerous national or international scientific meetings and many have received significant awards from these societies for their accomplishments. The work of these students is an excellent reflection of the quality of the research efforts of our faculty who continue to be one of the top extramurally funded programs at the University of Delaware at a time when extramural grant support has never been more competitive.

We have had an exceptional year of faculty recruitment. Dr. Barbara Butler has brought her expertise and commitment to Science Education and undergraduate education. Dr. Fidelma Boyd has joined us with an exciting



Barbara Butler

program in bacterial pathogenesis and genetics. Dr. Ken van Golen's lab will continue its studies of the role of cell migration and growth factor signaling in cancer. Dr. John Hoyer's program emphasizes the study of the mechanisms of biomineralization in both normal and pathological contexts. We welcome these new faculty members as they begin to make their mark on the UD community. We all will miss the contributions of Dr. Malcolm



Fidelma Boyd



John Hoyer



Ken van Golen

Department Awarded National Grants to Support Education

A changing world presents universities with educational challenges and universities must adapt by creating innovative solutions. Graduates of biological sciences programs must now have stronger backgrounds in the physical and mathematical sciences to succeed in their professions. To address this issue the Departments of Biological Sciences, Chemistry/Biochemistry, and Mathematics over the past year collaborated to introduce a more quantitative approach to the Biology curriculum. From this collaboration a new interdisciplinary major in Quantitative Biology emerged. The group further recommended that educational modules be developed to help Biological Sciences students understand how biological systems can be mathematically modeled. Mathematics Fellows, who are advanced undergraduates majoring in mathematics, would then assist professors in teaching modeling using these modules. This proposal garnered national attention when the Howard Hughes Medical Institution gave the University a \$1.5 million grant to support these efforts. Led by Drs. David Usher (Biology) and Hal White (Biochemistry), the grant also funded undergraduate research and other educational initiatives.

The department also received two grants this year to support educational enrichment programs designed to assist underrepresented students succeed in earning Baccalaureate degrees and then pursue advanced degrees in graduate or medical school. The Network of Undergraduate Collaborative Learning Experiences for Underrepresented Scholars (NUCLEUS) program, funded by the Howard Hughes Medical Institute, has a record of success in this area and provides the focus for the two other programs. The National Institutes of Health funds a program to first identify promis-

ing students at the State's Community Colleges and then to offer them educational opportunities at their home campuses and research opportunities at the University of Delaware. A recently funded grant from the Department of Defense gives students at two historically black colleges opportunities to do research on breast and prostate cancer. These programs are being directed by three Biology faculty, Drs. David Usher, Robert Sikes and Carlton Cooper. The aim of all three programs is to produce the next generation of leaders in biomedical research.



Carlton Cooper, Robert Sikes, and David Usher

Alumni News

David Willis (B.A. 1972) studies Behavioral-Developmental Pediatrics and is the Medical Director at the Northwest Early Childhood Institute in Portland, OR.

Elizabeth Strawbridge (B.A. 1973) is a retired SCUBA instructor and research diver now working as a Quality Assurance Analyst with Anheuser-Busch in Jacksonville, FL.

Gregory Feulner (B.A. 1985) was recently named Vice President of Business Development for Lentigen Corporation in Baltimore, MD.

David Hauben (B.A. 1987) earned an MBA from Fairleigh Dickinson University and is now a Regional Sales Director at Neurocrine Biosciences, Inc. in San Diego, CA.

Dan Katz (B.S. 1994) received a Master of Forensic Sciences degree from George Washington University, and is now the DNA Technical Leader for the State of Delaware's Forensic DNA Laboratory in Wilmington, DE.

Dawn Savio (B.S. 1995) is presently a Research Biologist at Wyeth Pharmaceuticals in Philadelphia, PA.

Dara Wegman-Geedey (Ph.D. 1995) is an Associate Professor of Biology at

Augustana College in Rock Island, IL.

Louis Rotkowitz (B.A. 1999) is completing an Internship in General Surgery at the Nassau University Medical Center in East Meadow, NY.

Kristin Beebe (Eckfeld) (B.A. 2000) is a Biologist in the Urologic Oncology Branch of the National Cancer Institute in Bethesda, MD.

Neil Gabriel (M.S. 2000) is currently a Signals Warfare Officer aboard the U.S.S. Chafee, a destroyer whose home port is Pearl Harbor, HI.

Thanks to everyone who sent us their news!

What's New with Mac Taylor



Malcom Taylor

Dr. Malcolm Taylor ("Mac" to everyone who knows him) came to the Biology department at UD in the Fall of 1973. He had spent the preceding two and a half years working on the ecological aspects of the large dredging project that widened the Chesapeake and Delaware canal.

Dr. Taylor received his undergraduate degree from Franklin and Marshall in 1964, one of only four of the 52 Biology majors who was not a pre-med. He then went to the Johns Hopkins Medical School and earned his Ph.D in Physiology in 1969. After joining the UD Biology faculty, Dr. Taylor also received a joint appointment in the College of Marine Studies in 1977 and was promoted to Associate Professor in 1979.

The best description of Dr. Taylor's professional interests is that he is an environmental physiologist. A specific focus of much of his research has been the endocrinology of fish, for example the relation of spawning in salt marsh fish to lunar cycles. He has supervised the work of about 50 undergraduates in his laboratory and was the research advisor for 18 graduate students who completed either a Masters or Ph.D. degree.

Dr. Taylor has taught several Physiology courses: BISC 406 (Human Physiology and Anatomy), BISC 306 (General Physiology), BISC 660 (Environmental Physiology) and BISC 630 (Ichthyology).

In addition, he was one of the designers of a course in Experimental Physiology, which gave rise to the BISC 316 two-credit lab currently offered. Dr. Taylor also served several years as Associate Chair to Dr. Stephens.

After 33 years in the Biology department, Dr. Taylor is retiring, effective February 1, 2007. His retirement plans include lots of boating on the

Chesapeake Bay and a number of house projects, although he will teach a fish biology course this winter session. When asked to comment about his career at Delaware, Dr. Taylor said: "It was the ideal combination of location, teaching and research to match my interests. I've gotten a lot of satisfaction from working with U of D students and the members of the Department of Biological Sciences. Some really great people have gone through my courses and lab over the years."

Many thanks to Mac Taylor for his excellent service to our department and best wishes for a long and happy retirement.



Dr. Taylor and undergraduate advisee Meghan Bills at Millsboro Pond near Millsboro, DE in the summer of 2004. They were collecting eels to study growth patterns and sexual maturation.

Have exciting and interesting things happened to you since you left UD? Do you wonder if the same is true of other students you knew here? The Department of Biological Sciences is asking you to tell us so we can share your stories with fellow Biology alumni in future editions of our newsletter. Let us know what special things have been going on with you, personally or professionally, by filling out the form below and sending it in, or better yet, complete the online form at: <http://www.udel.edu/bio/news/alumni/>

Please fill-out the following form, cut along dotted lines and return.
Name

Last First M.I. Maiden

Biology Degrees and Dates ____BA ____BS ____MS ____PhD

Comments

Please return completed form to Dr. David W. Smith, Department of Biological Sciences, University of Delaware, Newark, DE 19716. Thanks for your cooperation!

We need your help!

Biology has been busy on all fronts. Your tax-deductible gifts are deeply appreciated and make a huge difference in program development. If you are already planning on donating to the University of Delaware, you may target your support to the Department of Biological Sciences. Please join us in this effort by sending your donation to:

Department of Biological Sciences

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Please make the check payable to: University of Delaware. Contributions can also be made by credit card online at <http://www.udel.edu/bio/about/support/>

Graduate Program Expands Training Opportunities

The Ph.D. in Biological Sciences is usually thought of solely leading to a career as a college or university professor. This highly competitive career track continues to be a direction sought by many of our doctoral students; however, national surveys show that fewer than 25% of Biology Ph.D.s hold tenure track academic appointments 6 years after obtaining the degree. For example, a number of Ph.D. graduates from our program work in the biotechnology industry, participate in government programs to reduce the threat of biological warfare agents or develop computational tools to fulfill the promise of the human genome project.

As another avenue to fulfill the need of our graduates to apply their scientific knowledge to a business setting, we have collaborated

with the Lerner College of Business at UD to develop an innovative dual Ph.D./MBA program that trains graduate students to both perform research in biological sciences and to understand the workings of the business community. While this program only officially began in September 2006, six of our current Ph.D. students already have begun the MBA coursework to complete this dual degree.

Many of our students have strong interests in science education and will hold academic positions after graduation. Professor Deborah Allen, in collaboration with others across the university, was awarded a grant from the National Science Foundation in Spring 2006 that places Ph.D. students in high school classrooms with the goal of both improving high school science instruction and the ped-

agogical skills of Ph.D. graduates. This grant currently supports five Biological Sciences Ph.D. students who are spending two days each week in Delaware high school classrooms as well as developing new laboratory/problem based learning exercises to make science more relevant to the high school population.



Deborah Allen

Center for Translational Cancer Research Opens

February 1, 2006 marked the launch of the Center for Translational Cancer Research (CTCR) in Delaware under the directorship of Dr. Mary C. Farach-Carson. The CTCR represents a formal alliance of the University of Delaware (UD), the Helen F. Graham Cancer Center (HFGCC) at Christiana Care, the Nemours/A.I. duPont Hospital for Children and the Delaware Biotechnology Institute (DBI). Cancer is a major health problem that affects thousands of Delawareans. Before the creation of the CTCR, no coordinated network existed in the State of Delaware to unite local cancer researchers and clinicians with a common focus on developing new cancer treatments, identifying new cancer biomarkers for population screening, and prevention and risk management. The CTCR has created a center "without walls" to support clin-

ical and basic scientific efforts in translational cancer research within the State of Delaware.

The first aim of the CTCR is to identify and link ongoing cancer research efforts within the State including those at academic institutions, in hospital and clinical settings, and in privately funded laboratories. The alliance will provide a forum in which researchers can "translate" their discoveries into new tools for clinicians that will benefit patients. Additionally, the CTCR will provide an educational setting in which a new generation of future cancer researchers and clinical oncologists can be trained, beginning at the undergraduate level. Along these lines, a new project was just funded that will place two to three UD undergraduates with a career interest in

genetics into the High Risk Family Cancer Registry project at the HFGCC. In the longer term, the CTCR plans to link with K-12 efforts in the State to attract young scientists to the health professions. The investigators of the CTCR will take advantage of the latest technologies and core facilities at the DBI to apply for new multi-investigator inter-institutional grants from both federal and private sources.

As its ultimate goal, the CTCR seeks to enhance State efforts in advocacy, research, education, and community health to reduce the mortality and incidence of cancer related disease in Delaware. For more information about the CTCR, and to make a donation, please visit their web site at <http://www.udel.edu/ctcr/>.

The Department of **Biological Sciences**

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