



The Department of Biological Sciences

The University of Delaware

December 2002

Greetings from the Chair

We have had another exciting year of progress on many fronts for students and faculty. Graduate and undergraduate education programs have enjoyed many advances as a result of our revised curriculum and the addition of new courses. Our students also have excelled in research accomplishments as they presented abstracts at numerous national meetings as well as published papers in a variety of journals. Our seminar program continues to thrive giving us the opportunity to have top-notch scientists from across the country present their work to our department. Integration of education and research at all levels has allowed us to successfully compete for several large, prestigious grant awards to further enhance these efforts. We are proud to provide a strong training experience for undergraduate and graduate students as well as a growing number of post-doctoral trainees.

It has been an extremely productive year for recruitment. We are pleased to have added Drs. Carlton Cooper, Erica Selva and Robert Sikes to our faculty. Drs. Cooper and Sikes bring excellent programs in human cancer biology research while Dr. Selva brings a state-of-the-art program in developmental biology and cell signaling. All three new faculty will expand on the growing effort in the Human Health Initiative and have strengthened research ties with other key institutions in the state of Delaware. Federal funding for individual research programs has continued to increase to over \$6 million in active awards, placing us among an elite group of highly funded Biology programs.

Dan Tripodi, Ph.D. (class of 1964) was this year's Distinguished Alumnus in Biological Sciences and presented a well-received speech at this year's

Graduation Convocation. We invite you to nominate candidates for next year's Distinguished Alumnus/a. This year's Graduation Convocation also was the first year for the Cottrell Awards for outstanding performance in undergraduate



Drs. Robert Sikes, Carlton Cooper, and Erica Selva

research and academic achievement by a student majoring in Biology. We greatly appreciated the generosity of Frederick and Marian Cottrell to initiate this program to recognize some of our best and brightest. For additional updates and information, please visit our website at <http://www.udel.edu/bio/>.

It is with great sadness that we announce the passing of our long-time colleague and friend, Dr. Milton Stetson. Milt was an outstanding scientist and a rigorous teacher who also served as department chair as well as Director of the former School of Life and Health Sciences. Donations in Milt's memory may be sent to Director of Development, Arts & Science, University of Delaware, 4 Kent Way, Newark, DE 19716, to the attention of Kevin G. McCullen in the name of the Dr. Milton H. Stetson Memorial Fund. We are hoping to establish an endowment for undergraduate research in his honor.

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Dr. Milton H. Stetson, 1943 – 2002

Department Honored by Two Prestigious Grants for the Support of Undergraduate Education

In addition to substantial grant support for research, the Department of Biological Sciences has been particularly successful in obtaining outside support to enhance several educational programs. This year the Department of Biological Sciences at the University of Delaware was one of only thirteen institutions of higher education in the nation awarded a Beckman Scholars Program by the Arnold and Mabel Beckman Foundation. This grant supports exceptionally bright undergraduates with a \$17,600 fellowship to carry out research



Justin DiAngelo

during two summers and one academic year. During the second summer, Beckman Scholars will attend an annual research symposium in San Diego, CA, to present their research to nationally prominent scientists.

The Departments of Biological Sciences and Chemistry & Biochemistry also received a \$1.7 million grant from the Howard Hughes Medical Institute (HHMI) to support undergraduate biology education. The grant supports the integration of computational biology into the curriculum and funds major changes to

the department's laboratory courses. The department is phasing out advanced laboratories associated with lectures, where students work on single two-hour "canned" experiments. Replacing these will be independent experimental biology laboratory courses taught by tenured faculty. In these laboratories, students are expected to first master defined laboratory experiments. Then, they will be asked to alter experiments by varying experimental conditions as a way of introducing the concepts of experimental variables, controls and standards. During the final phase, students are expected to design their own experiment and interpret their own results.

As a way of integrating faculty research with student learning in the new experimental biology laboratory courses, students are encouraged to propose experiments related to their own projects. This year one student, Justin DiAngelo, did just that. He presented his results at the national Experimental Biology meeting in New Orleans where he won a first place award in the undergraduate poster competition. He subsequently had his research published in a national scientific journal.

Other programs supported by the HHMI grant include incentives for faculty to adopt active-learning strategies and to effectively use instructional technology.



2002 Summer Undergraduate Research Symposium

These include a joint Biology-Chemistry teaching assistant training program to improve instruction, a summer program for outstanding local high school students and assisting teachers to learn more about scientific method, and changes to the curriculum to support engaging, exploratory laboratories for elementary education majors taking General Biology. There is also major support for NUCLEUS, an infrastructure for underrepresented students to succeed in science.

One of the most important and successful aspects of the previous HHMI grant has been its support of undergraduate research. The current grant expands this support to include more summer fellowships and a summer lecture series, which culminates in a mock national meeting. To learn more about the summer lecture series please visit our web site at <http://www.udel.edu/chem/white/HHMI/S02seminar.html> and to see what our students accomplished last summer, visit <http://www.udel.edu/chem/white/HHMI/ResSymposium2002.html>.

Comprehensive Underrepresented Minority Education Program Initiated

The National Science Foundation stated in a 1999 report that of 24 year-olds who earned bachelor's degrees, only 7% were African Americans, 6% were Latinos, and 0.6% were Native American. The report also stated the number of minorities earning doctoral degrees in science and

engineering was abysmally low: 3% African Americans, 3% Latino, and 0.4% Native American. Convincing underrepresented minorities to consider careers in sciences requiring advanced degrees has proved to be a major challenge at the University of Delaware (UD) where

minority students receive only 5% of the support for undergraduate research. These dismal statistics led the Department of Biological Sciences to apply for a federal grant to initiate a unique program with Delaware Technical & Community College (DTCC)

to open research opportunities at UD to their minority students. This September our department was one of only nine across the nation to be awarded an NIH Bridges grant.

With the Bridges grant and the HHMI funded NUCLEUS program, the Departments of Biological Sciences and Chemistry & Biochemistry have one of the strongest minority recruitment and retention programs in the university. The Bridges and HHMI grants offer DTCC and UD underrepresented students paid apprenticeships in research during the

academic year. These apprenticeships will allow students to experience research as freshmen or sophomores, and we hope to convince them that research is an exciting career option. For those most intrigued with the experience, the two grants also fund summer research fellowships. A 10-week summer program provides intense training by having students work on their own research projects under the direct supervision of a faculty mentor. For the most productive students, funds are available for them to present their research at

national scientific meetings.

Along with research opportunities, the grants offer underrepresented students special advisement, access to free tutoring and peer mentoring, special activities focused on career development, and scholarship support. The University of Delaware is supporting the program by renovating 1,000 square feet of office and meeting space and by making it easier for underrepresented minorities in the sciences at Delaware Technical & Community College to transfer to the University of Delaware.

What's New with Dave Smith

Many alumni will remember Dr. David Smith who joined the UD faculty in 1975. Dr. Smith is a consummate record-keeper and reports that he just surpassed teaching his 7,000th student, over 5,000 of whom were in his microbiology classes over the years! Dr. Smith's fondness for statistics recently led to him being featured on the front page of the *Wall Street Journal* — along with a stylized portrait. It seems that Dr. Smith arguably is the world's expert on the statistics of major league baseball, and is the president of a baseball record company, Retrosheet (see <http://www.retrosheet.org/>). This not-for-profit organization (Dr. Smith, with a smirk, characterized it as "anti-profit!") has records of nearly every pitch, hit, foul ball and run since professional baseball began in

1871. While there are some gaps in the data related to problems with record-keeping in wartime and during the Great Depression, Dr. Smith's organization can document every pitch in every game played since 1960. It turns out that some of Retrosheet's biggest customers are the major league teams themselves, and the non-profit nature of Smith's organization fosters free exchange of information that might otherwise be very difficult to obtain. On a more serious note, Dr. Smith's expertise in microbiology has led to his being invited to join Senator Tom Carper in two "town meetings" held in New Castle County on the topic of anthrax terrorism. Dr. Smith also was a bioterrorism panelist in the Strengthening the Mid-Atlantic Region for Tomorrow (SMART) Caucus that featured U.S. Congressmen

from Delaware, Pennsylvania, Maryland and New Jersey. Finally, in the fall of 2001 Dr. Smith assumed the position of Undergraduate Program Director in Biological Sciences. As you might guess from this list of activities, there is no grass growing under Dr. Smith's feet!



Dr. David Smith

Alumni News 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 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

University of Delaware, Wolf Hall, Newark, DE 19716

Name

____ Last First M.I. Maiden

Address

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Wolf Hall Renovation Update

We are in the final stages of the 3-year, \$26M renovation to Wolf Hall which should be completed by January 2003. All research labs and associated offices and teaching areas have been completely overhauled to create a beautiful, state-of-the-art facility serving research and education needs. Sophisticated facilities for molecular biological, ecological and biochemical research have been established, including core areas devoted to bioimaging, proteomics and stem cell research. Everyone in the department is looking forward to being reunited at this site and enjoying the much-improved work environment. We hope you'll have a chance to visit us and witness the transformation firsthand!



Seminar room under construction



3rd floor hallway in preparation for painting

Dr. Daniel Carson Receives Prestigious NIH MERIT Award



Dr. Daniel Carson

As part of a highly selective National Institutes of Health (NIH)/Institute of Child Health and Human

Development research grant program, Daniel D. Carson, Ph.D., Trustees Distinguished Professor of Biology and Chairman of the Department of Biological Sciences at the University of

Delaware, has been awarded an immediate five-year extension on his research award to study the role of glycoconjugates in the female reproductive system. Decided on the basis of past excellence, this prestigious "MERIT" award will allow Dr. Carson to focus on his research for ten years - in the form of back-to-back, five-year grants totaling some \$3,500,000, bringing Dr. Carson's current awarded research funding to some \$6,000,000.

Initiated in 1987, the Method to Extend Research in Time (MERIT) Award program extends funding to a select number of investigators who have demonstrated superior competence and

outstanding productivity during their previous research endeavors. The MERIT awards are intended to provide such investigators with long-term, stable support to foster their continued creativity and spare them some of the administrative burdens associated with frequent preparation and submission of research grant applications. Dr. Carson was the first to identify a novel heparin/heparan sulfate interacting protein (HIP) that plays a role in embryo implantation into the receptive uterus and in regulation of growth responses and blood clotting. His work is of key importance to women's health efforts focusing on fertility and infertility.

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