FROM THE CHAIR

I typically have a hard time figuring out where to start when so much is happening in the Biology Department, however, that is not the case this year! It’s pretty obvious that our big news is the award from the Howard Hughes Medical Institute (HHMI) for $1.3 million. So read on to find out more about this grant and all that is happening in Bio.

—Véronique Delesalle

Last year (2011), HHMI invited Gettysburg College, along with 214 colleges and small universities, to apply to their 2012 competition in support of science education. As a consequence, the Biology, Chemistry and Physics departments initiated a series of discussions centered on one of HHMI’s principal initiatives: preparing students to be leaders in science and medicine. Working together, our three departments converged on a common vision of our goals for our students. We proposed a series of activities that fell under three headings: Research Ready, Research Active, and Research Connected.

To be research ready, students must be exposed to cross-disciplinary, problem-based, and research-oriented courses throughout their four years on our campus. To achieve this goal, we will permanently adopt our new FY research course on Phage Biology and create several new courses, including another FY research course on DNA Damage and Cancer Biology, a fused section of Bio 112 and Chem 108, interdisciplinary courses such as Biophysics, Computational Science, and a series of cross-disciplinary lab courses, which we call the “X-Labs.” In addition, we will redesign lab exercises in introductory physics, genetics, organic chemistry, biochemistry and physical chemistry.

HHMI AWARD

To provide opportunities for students to be research active, we will offer more summer research fellowships for science majors as well as create a for-credit mentored research program that will encourage students to participate in research early in their academic careers. A new cross-disciplinary Science Institute at Gettysburg (the X-SIG) will oversee our science summer research program, fund student participation in summer research as well as their involvement in early research and attendance at conferences, and facilitate increased interdisciplinary connections among science departments through an interdisciplinary seminar series.

Finally, for our students to be research connected, we are adding a peer mentoring program for introductory science courses, and will establish a residential Science House to enhance student sense of community while honing their leadership abilities.

In the words of the HHMI panel: “This was an innovative proposal with many components that would be appealing to students. The proposal incorporates state of the art technologies while maintaining a focus on fundamental scientific questions. The curriculum does a good job of cross-linking subjects in ways that should keep students
engaged. The college has done a good job of using HHMI funds to seed projects and finding ways to sustain them post HHMI support." Over the next four years, we are very much looking forward to keeping you updated on all of the above activities. You can read more about our

NEW FACULTY MEMBER

Ryan Kerney will be joining our Biology Department this fall as a tenure-track Assistant Professor. Ryan Kerney earned a PhD from Harvard University where he worked in the Museum of Comparative Zoology on the evolution and development of the skeleton in different species of frogs. Following his graduate work, Ryan did post doctoral research at Dalhousie University in Halifax, Nova Scotia. His research focus expanded during this postdoc to include symbiosis, lung development, evolutionary theory and embryology. Ryan’s research career has taken him to every continent except Antarctica, and includes projects on avian ecology, biotechnology, embryology, forestry and biodiversity surveys (see http://web.mac.com/ryankerney/Site/Welcome.html). Ryan is currently completing a science and policy fellowship through the American Association for the Advancement of Science (AAAS), where he has been focusing on the intersection between science and public policy decisions concerning energy and the environment. He is also engaged in STEM education reform initiatives through the Department of Energy, and has an extensive teaching portfolio in anatomy, genetics, vertebrate evolution, and general biology.

PHAGES AT GETTYSBURG COLLEGE

Last year, Gettysburg College also joined HHMI’s Science Education Alliance and offered a yearlong research experience for first-year students for the first time. This project involved FY students in a nation-wide research project focused on discovering and describing the phages (viruses) that infect a particular species of bacteria, Mycobacterium smegmatis. Twenty percent of the class of 2015 who expressed an interest in teaching will be able to apply to be a Herzig Teaching Fellow. We expect to support five students through this new program.

We know that our students rock when it comes to teaching. For the last three years, Duke University has hired one of our recent grads as a lab instructor. This coming year, Elizabeth Heisler’12 will continue the tradition started by Jen Merrill’10 and Kerri Norris’ 11.

RENOVATIONS

If you visit the campus between now and next winter you will notice a proliferation of office and laboratory trailers in Constitution parking lot. These are the temporary home of much of the Biology Department as well as all of Psychology during a $3 million dollar facilities upgrade of McCreary Hall. The project will include renovation of five faculty/student research spaces as well as HVAC upgrades (we are looking forward to actual temperature control). McCreary 209, which is used by Microbiology and the Phage course, is also being renovated with partial funding provided by the Alden Trust. The renovations will provide larger and much enhanced space for faculty/ student research collaborations. Completion is expected in January 2013.

THE CLASS OF 2012…. AND BEYOND!

Students in the Class of 2012 as well as juniors and even FY students in the Phage course participated in Celebration this year with posters and oral presentations on research ranging from bacteriophages to bats. To see the complete list of topics please visit the departmental web page, where you can also see the complete list of students receiving honors in Biology (eight) and BMB (four). Additionally, Hanna Anthony won the college-wide Stock Writing prize for the sciences. As of the posting of this newsletter, eight Biology and BMB alums were heading graduate programs this fall and nine to medical school (some are class of ’10 and ’11 who were recently accepted); others are beginning jobs in places around the globe. Hopefully, all will stay in touch- we always love to hear from our alums.

THE RANDALL S. ALBERTE RESEARCH FUND

The Randall S. Alberte ’69 Research Fund was established last year to support student-faculty research collaboration. So far, it has been earning income for us and funds will become available this coming year. For the next four years, the Alberte fellows will also be partially supported by HHMI funds for research supplies and other professional activities (e.g., attendance to meetings). In an age of specialists, Randy's work was deepend iderdisciplinarily, so we think he would have been pleased to know his gift was a crucial component in getting our HHMI grant. Expect to hear more about our Alberte-HHMI fellows in next year’s newsletter.

HERZOG TEACHING FELLOWS

One of the most powerful learning experiences for undergraduate students occurs when they are asked to assume the role of teacher. Over the last few years, we have been able to offer a number of opportunities for students to practice teaching, primarily in our 100-level courses, but we have been dependent on inconsistent funding. Next academic year, with support from Karl Herzog ’62, students who have demonstrated mastery of concepts in Genetics and Cell Biology and who have expressed an interest in teaching will be able to apply to be a Herzog Teaching Fellow. We expect to support five students through this new program.

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SUPPORTING THE BIOLOGY DEPARTMENT

Alumni like Randy Alberte and Karl Herzog are making a big difference in what we can do for our students, and you too can support the Biology Department directly in one of two ways:

Donations to the “Alberte Fund” will allow us to grow that resource and to support more summer student researchers.

Donations to the “Biologiy Special Gifts” fund will be used to support new teaching initiatives and to buy small pieces of equipment for particular research projects.

ALUMNI SEMINAR SPEAKERS AND CO-AUTHORS

On honors day we welcomed back Debra Wolgemuth ’69 as for a fascinating presentation of her research on retinoid signaling as a possible approach to male contraception. Dr. Wolgemuth is Professor of Genetics & Development and Obstetrics & Gynecology at Columbia University Medical Center, and is a member of the Gettysburg College Board of Trustees as well as an alum.

Sarah Fritz ‘10 and Carla Gallagher ‘00 also returned to present seminars last fall, and students enjoyed hearing about their research both at the seminar and in meeting with them.

Dr. Peter Fong has worked with many students in his research on freshwater molluscs, and this year has published research papers with Nicki Molnar ’07 and Caitlin Hoy ’11 (Molnar, Nikolett and Peter Fong. 2012. Toxic effects of copper, cadmium, and methoxychlor shown by neutral red retention assay in two species of freshwater molluscs. The Open Environmental Pollution and Toxicology Journal. 3: 65-71 and Fong, Peter and Caitlin Hoy. 2012. Antidepressants (venlafaxine and citalopram) cause foot detachment from the substrate in freshwater snails at environmentally relevant concentrations. Marine and Freshwater Behaviour and Physiology. 45: 1-9)