Dear Alumni,

Greetings! It has been too long since we sent out a newsletter. To catch you up on events, the last academic year has been a time of major change for the Department and the University, which certainly has made the chairmanship lively and challenging. We have new, energetic leadership, including a new chancellor, Keith Motley, a new Provost, Winston Langley, and a new dean of the College of Science and Mathematics, Andrew Grosovsky. Our new dean served as the vice provost for undergraduate education at the University of California, Riverside from 2004 to 2007, where he was a professor in the Department of Cell Biology & Neuroscience for many years. His appointment with UMass Boston represents a return to home, as he earned his A.B. in biology from Boston University, and his M.S. and Sc.D. in physiology from Harvard University.

Last year, two new faculty members joined us, Katherine Gibson, a cellular biologist, and Alan Christian, an invertebrate ecologist. Dr. Gibson taught microbiology and Dr. Christian taught population biology this year; both have become valued teachers and investigators in the Department. Dr. Jeff Dukes, our young award-winning terrestrial ecologist, left us to join the faculty at Purdue University; however, he still actively interacts with faculty and students here at UMB. Finally on the faculty news, we end the 2008-2009 academic year with the news the Ken Kleene was awarded the Chancellor’s Award for Distinguished Scholarship in recognition of his many achievements as a leading investigator in the area of spermatogenesis. We are proud to celebrate this recognition of his achievements as he receives his award at Commencement this year.

So, the Biology Department continues to grow and prosper in spite of the difficult financial times that we face in the Commonwealth. In fact, you may be aware from the news of planning for a new Integrated Sciences Complex that is part of the UMass Boston Master Plan. The concept is moving past the early planning stages and we are already in discussions with architects and planners about what our new building will look like. We are excited at the prospect of having state-of-the-science teaching and research labs by as early as 2013. In addition, UMass Boston and the Dana-Farber/Harvard Cancer Center (DF/HCC) have developed a strong relationship over the last five years, and have established formal partnerships designed to provide scientific research and training opportunities for students. Final legislation earmarked $10 million for the Center for Personalized Cancer Therapy (CPCT) to be established at UMass Boston as a joint effort with the UMB-DF/HCC partnership. The CPCT will be located within UMass Boston’s new Venture Development Center (VDC). Additionally, UMass Boston has been awarded a Massachusetts Life Sciences Center grant for $750,000 to assist in start-up costs for recruitment for the Brann Endowed Chair in Science and Mathematics, who will serve as an academic leader in work related to CPCT. This will have a huge positive impact for the Biology Department and our students.

Previous editions found at www.bio.umb.edu click on Alumni
Also, thanks to your kind donations and support, we continue to provide a rich science experience for our students. In particular, last year we established the Biology Alumni Fund to directly support undergraduate research activities in the Department. This spring we awarded research grants in a competitive application process to six undergraduates to help support their independent research projects in the Department. We are indeed fortunate to have generous alumni like you, who remember the fine biology education that UMass Boston provides to its citizens. As always, we are proud of our alumni. We love to hear about where you are, what you are doing and your latest achievements. Please send us a letter or email to share your news with us and your fellow alumni in the Alumni Newsletter and the updated Alumni page on the Biology Department Web site (www.bio.umb.edu).

Michael Shiaris  
Chairman, Biology Department

New Faculty

Andrew Grosovsky became dean of the College of Science and Mathematics in 2007. Previously, he was the vice provost for undergraduate education at the University of California, Riverside. His research interests are the mechanisms of mutagenesis and genomic instability in human cells.

Katherine Gibson, formerly a postdoctoral fellow in the laboratory of Graham Walker, Department of Biology, MIT, joined us in September 2008. Her research studies bacterial cell cycle regulation during chronic intracellular host invasion by Sinorhizobium meliloti.

Alan Christian, formerly associate professor of biological sciences at Arkansas State University-Jonesboro, joined us in January 2009. His research on the ecology of freshwater mussels addresses fundamental ecological questions and applied issues.
In Memoriam

It is with a heavy heart that the Biology Department informs you of the passing of Dr. Nancy Goranson (Class of 2005) last fall after a long battle with cancer. Before her passing, Dr. Goranson requested that her family donate $50,000 to the university so that an endowment fund could be established in her memory for biology program students in an effort to fund their research.

The Nancy Goranson Graduate Student Research Fund, established in November 2008, provides financial assistance to biology graduate students for the purchase of laboratory equipment and supplies. As you may know, Nancy received her Ph.D. in Biology from the University of Massachusetts Boston, and as a dedicated lecturer for seven years here, she taught over a thousand nursing and biology students in courses like Medical Microbiology, Anatomy and Physiology, Microbiology and General Biology. Nancy knew first hand that students often struggle to get adequate resources to complete their research; she wanted to support their worthy goals and see them attained.

Nancy’s kindness and cheerful demeanor will be greatly missed by all who knew her. The Biology Department is grateful for her hard work and dedication to the University and its students in an effort to give each student the knowledge and skills needed to accomplish their individual goals. We thank Nancy and her family with affection for their generous contribution.

Donations to continue her legacy can be made in Nancy’s memory.

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Faculty Honors, Awards, and Distinctions

Jeffrey Dukes, Adjunct Assistant Professor, was named a 2008 Fellow of the Leopold Leadership Program at Stanford University’s Woods Institute for the Environment. This program trains academic researchers to be effective leaders and communicators by providing them with the skills and connections they need.

Brian White, Associate Professor, received the Chancellor’s Distinguished Teaching Award and gave a Healey Library lecture, Genes and Jeans, on the pains and pleasures of teaching.

Kamal Bawa, Professor, received the 2007 P.N. Mehra Memorial Award in Botany and was awarded the Distinguished Services Award of the Society for Conservation Biology. The award honors Dr. Bawa’s extraordinary contributions to conservation in India through the establishment of the Ashoka Trust for Research in Ecology and the Environment and related activities. It will be given to him at the Society’s upcoming annual meeting in Beijing, China, 11-15 July 2009.

Kenneth Kleene, Professor, received the 2009 Chancellor’s Distinguished Scholarship Award for his success in pursuing an internationally recognized, externally funded research program in the Biology Department at UMass Boston for 24 years.
Jeff Dukes resigned to take a tenure track position in the Department of Forestry and Natural Resources Biological Sciences at Purdue University in fall 2008. He continues to collaborate with UMB faculty and maintain many of his research activities at UMB.

Publications, Research and Grants

Books and Book Chapters Published


Journal articles


Pfister, E and Tan, Y. Molecular evolution of TAR1, a gene nested on the antisense strand to the 25S rRNA gene, in the *Saccharomyces* genus. *Evolutionary Bioinformatics* (Accepted).


**Research Grants**

Jeffrey Dukes received an NSF REU supplemental to an existing CAREER Award as part of the Boston-Area Climate Experiment, and a DOE National Institute for Climatic Change Research subcontract with Colorado State

Ron Etter and Mike Rex were awarded a three-year NSF grant for evolution in deep-sea mollusks.

Kenneth C. Kleene received a new NSF grant for control of mRNA translation during spermatogenesis and an NSF REU supplemental for the grant.

Rachel Skvirsky received a three-year award as an NSF REU site to fund Research Experiences in Integrative and Evolutionary Biology, and a four-year NIH award for the Initiative for Maximizing Student Diversity at UMASS Boston.

Alexey Veraksa received a three-year NSF grant to study molecular scaffolds in Drosophila signal transduction and a one-year NIH pilot award for in vivo analysis of membrane receptors signaling by dissecting multiprotein.

Brian White received a Visionary Grant from Middlebury College to design “Building Proteins on Your Cell Phone: a game to teach protein structures.”

Three biology faculty have recently been awarded Healey Grants. Solange Brault received her award for *Spatio-temporal Patterns in Resource Availability and Right Whale Abundance in Cape Cod Bay 2009; Alan Christian* for *The Impacts of Predation on Fresh Water Mussels: Prey Species and Size Selection and Predator Identification*, and Linda Huang for *Using Functional Genomics to Define the Genetic Network in Which the Sps1 Kinase Acts to Control Cellular Architecture in S. cerevisiae.*
Congratulations to all of our 2008 Biology and Biochemistry Graduates!

Catherine Reyes (BS 2006, John F. Kennedy Award for Academic Excellence recipient) has received the very prestigious Jack Kent Cooke Foundation Graduate Scholarship. The scholarship will help fund her medical education at Harvard Medical School.

Chris Himes (BS 2002), who worked on C. elegans as a McNair fellow with Nancy Goranson, has finished his dissertation at the University of Washington. He received UW’s Outstanding Teaching Award for developing, with another student, a course called “Learning to Learn in the Biological Sciences.” The course helps students achieve success both in biology and their overall college career by teaching them good study strategies and developing a peer support system. He has also published his first paper and accepted a post-doc position at Williams College.

2008 Undergraduate Awards

Christinne Villanueva: The Biology Department Service Award
Joy Cookingham: The Bettina Hall Harrison Award for Exceptional Teaching and Mentoring Skills and The Biology Department Research Award

Beta Beta Beta National Biology Honors Society Members 2008

Michelle Bisnaw, Michael Cappillino, Nemisha Dawra, Theodora Desronvil, Jacqueline Draper, Stacey Akielia Dumornay, Christopher Poulos, Dreyslem Yamile Rivera, Adam Sienkiewicz, Hermann Simo, Jessica Thomas, Suhail Usta, Christinne Villanueva

BIOLOGY HONORS

The following students defended their research in a public forum and submitted a written thesis for the Department Archives for Honors in Biology.

Joy Cookingham (Jeffrey Dukes) Relative Importance of Grassland Functional Composition Versus Propagule Pressure in Determining Abundance of Yellow Starthistle (Centaurea solstitialis) in Californian Serpentine Grassland

Nemisha Dawra (Steven J. Miller, UMass Medical) - Synthetic Modification of Firefly Luciferin with an Aim to Change Its Photophysical Properties
Alumni Corner, continued

Honors, continued

Lois Luberice (Brian White) - Teaching Students about Protein Structure: 2D vs 3D

Stacey Akielia Dumornay (Adán Colón-Carmona) - Centromere Associated Protein E (CENP-E) Controls Growth in Arabidopsis thaliana

Adam Sienkiewicz (Adán Colón-Carmona) Utilizing Genetically Altered Arabidopsis thaliana in the Application of Polycyclic Aromatic Hydrocarbon Soil Phytoremediation.

Lisia Caldeira (Kenneth Campbell) A Compilation of Basic Math and Science Skills from Undergraduate Courses to Help in the Development of Undergraduate Research Experience

Hermann Simo (Michael Shiaris) Diversity of Archaeal Community Fingerprints from Various Plant Species and Geographical Locations in Massachusetts

Leonid Nepomniashy (Alexey Veraksa) Association of Drosophila β-arrestin and TRAF2 Suggests Participation of Kurtz in the Toll Signaling Pathway

Azmin Kahriman (Brian White) - Comparing Methods for Teaching Protein Structure: Three-Dimensional Visualization vs. Two-Dimensional Folding Simulation

Philip Kyriakakis (Alexey Veraksa) - New Drosophila GS-TAP Vectors for Protein Complex Purification and Proteome Exploration

Where are they now?

Andrea Talis (1981-1983) is now the Director of Program Development and Scientific Interaction at Tufts Medical Center.

Pilar Gibson (BS 2005) has received a fellowship to work on her Ph.D. in Diseases of Marine Organisms at the University of Rhode Island.

Frank Aguirre graduated in June 2008 with his MD from UMass Medical. He will be doing his residency in Ob/Gyn at Johns Hopkins.

Nilsa Vale-Khytyan (BS 2007 with Honors) is teaching biology at Revere High in the Boston Public Schools.

Odile Kamanzi (BS 2007 with Honors) is working in Dennis Kim’s lab at MIT, examining immunity using the model organism C. elegans.

Heather Charles (MS 2007 Jeff Dukes’ lab) is a Conservation Assistant for the Brookline Parks and Open Space Division.

Mike Cappillino (BS 2008) has accepted a two-year research technician position in Lynda Stuart’s immunology lab at MGH.
Elana Ehrlich (BS 2001) received her Ph.D. from the Department of Molecular Microbiology and Immunology at Johns Hopkins in 2007, and is now doing a post-doc there in Viral Oncology.

Jennifer Schomp (BS 2001) is now the Horticulturalist at the University of Wyoming, managing an 18-greenhouse research complex.

Phil Kyriakakis (BS 2008), who is pursuing graduate studies at the University of California, San Diego, recently received an NIH fellowship.

Craig McLean (Ph.D. 2003, Michael Rex’s lab) is now Assistant Director of Science at the National Evolutionary Synthesis Center at Duke University.

Stanislav Kovtun (BS 2008) will attend Tufts Dental School in the fall.

Joshua Pezet (BS 2006) has been accepted into the doctoral program at UMass Amherst in the lab of Joseph Elkinton, director of the OEB program. Joshua will be working on the chemical ecology and population ecology of the hemlock woolly adelgid (HWA) system.

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**Graduate Student Corner**

The following students submitted theses for their Master’s & PhD degrees in 07-08:

**Master’s**

**Sharon Attipoe**, *Identifying Transcription Co-Regulator Proteins of Olig1*, Advisor: Kenneth Kleene

**Carrie J. Byron**, *The Influence of Wave Exposure on the Snail, Nucella lapillus*, Advisor: Ron Etter

**Kathleen A. Theoharides**, *Plant Invasions across Space and Time*, Advisor: Jeffrey Dukes


**Heather Charles**, *Effects of Warming and Altered Precipitation on Plant and Nutrient Dynamics of a New England Salt Marsh*, Advisor: Jeff Duke

**Sara Espowood**, *Comparative Genome Analysis of Helianthus annus (Sunflower) and Lactuca sativa (Lettuce) Using the Model Plant Species Arabidopsis*, Advisor: Rick Kesseli

**Elizabeth Hennessy**, *The Interaction of Bacterial Cells Bearing ColV Plasmids with Cells of the Gastrointestinal and Renal Systems*, Advisor: Rachel Skvirsky


**Eric de Muinck**, *Factors Affecting ColV-Mediated Competition in a Structured Environment*, Advisor: Rachel Skvirsky

**Sarah C. Soule**, *Effects of an Authentic Inquiry Activity on Science Process Skills*, Advisor: Brian White
Graduate Student Corner, continued

Degrees granted, continued

Ph.D.

Kathy Wood, Life-history and Behavioral Characteristics of a Semi-wild Population of Drills (Mandrillus leucophaeus) in Nigeria, Advisor: Solange Brault

Maria Elizabeth Munoz Mendoza, Evolution of Dioecy from Distyly in the Genus Cordia (Boraginaceae): Inferences from Floral Morphometrics, Self-incompatibility and Sex Expression, Advisor: Kamaljit Bawa

Student Participates in Research Cruise

Emelia DeForce, a PhD student in the Biology Department at UMass Boston, participated in a National Science Foundation (NSF) funded international collaborative research cruise on the ship R/V Atlantis out of Woods Hole Oceanographic Institution (WHOI) during winter break in December 2007. She joined the Chief Scientist from WHOI, Dr. Stefan Sievert, a microbial ecologist who studies strange microbial life forms that support the rich deep sea vent communities. The research group was on board for 22 days in the Pacific Ocean at 9°N latitude and 104°W longitude along the East Pacific Rise, the ridge that traverses the ocean floor.

The main purpose of the cruise was to conduct work on the chemistry of hydrothermal vent fluids and to better characterize the microbial communities carrying out carbon fixation at various vent sites. Both free-living and attached microbial communities associated with diffuse flow vent waters as well as studies of the bacteria living within Riftia and Tevnia, two species of tube worms living at the vent sites, were sampled. The studies from this research cruise will help address questions about how much living biomass is produced at the vent sites and which organisms are responsible for it.

As part of Emelia’s Watershed Integrated Science Partnership (WISP) fellowship at UMB, she created a website via satellite internet with pictures, movies, and lesson plans that the teachers and 5th grade students at Sara Greenwood Middle School had access to over the world wide web.

Emelia, along with pilot Sean Kelley and Dr. Sievert, acted as a scientific observer during Alvin dive 4396 on Jan 11, 2008. The dive lasted 9 hours and had a maximum depth of 2508m (1.6 miles). You can contact her at emelia.deforce@umb.edu for any further questions about the cruise or the website.

Smoosh cup madness! A lesson for 5th graders about the effect of pressure on styrofoam.

There were 882 cups that traveled to the bottom of the ocean! This is the most cups ever sent down during a research cruise.
Jamie Webster was named to the Genzyme/UMass Scholars Program.

Madelyn Shapiro received an ASM (American Society for Microbiology) Undergraduate Research Fellowship.

D. Novem Auyeung received a grant from Sigma Xi Grants-in-Aid of Research Program.

Bridges - Summer 2008

Bridges to the Baccalaureate, funded by an NIH grant, helps minority students succeed in obtaining 4-year degrees in the biomedical sciences through facilitated discussion courses, pre-calculus and molecular biology methods workshops, intensive advising/mentoring, and research opportunities.

Initiative for Maximizing Student Diversity (IMSD)

In March 2008, a new NIH grant to fund the Initiative for Maximizing Student Diversity (IMSD) was awarded to Drs. Skvirsky and Colón-Carmona. IMSD is a year-round, research-intensive, skill-building, mentoring program for undergraduates interested in pursuing a PhD and career in research in the biomedical sciences. The program provides support for up to 22 CSM majors, and aims to increase diversity among research scientists in biomedicine. Participants receive opportunities to conduct independent research projects in laboratories at UMB and other Boston area research institutes such as Dana-Farber and Harvard Medical School, participate in enrichment activities that enhance their scientific

IMSD Co-PI’s & Directors:
Adán Colón-Carmona and Rachel Skvirsky

Nobel Laureate Craig Mello, PhD (middle left) & IMSD Fellow, Manuel Valdes (far right), along with other UMB attendees at the U56 Partnership’s 2nd Annual Cancer Symposium at the Dana-Farber/Harvard Cancer
IMSD continued

skills and preparation for graduate school, and present their work at scientific meetings. By providing supplemental instruction in historically difficult science and math courses and key activities available to all students, the IMSD program aims to have an institutional impact.

IMSD Students at the Honors Poster Presentation (left to right): Selina Imboywa, Olayemi Ajayi, Elizabeth Smith, and Chiedozie Uwandu

On Saturday April 4 2009, the University hosted its annual Welcome Day for accepted students. Jim Allen, horticulturist and greenhouse manager, gave an overview of the Biology major and what they might expect to learn in a Bio 112 lab on plant diversity.

Department staff taking time out to pose during set up for graduation ceremonies.

Sally Adams, Laney Digiovanni, Maureen Kelly, and Alexa MacPherson

Maria Mahoney, Michie Yasuda, and Jessica Thomas
Dear Alumni, 2007/2008 Graduates, Faculty, Staff and Students,

We would love to hear from you! Please keep us updated and informed by emailing Marcia or Alexa.

Marcia.Kazmierczak@umb.edu.
Alexa.MacPherson@umb.edu