New Member of the Department: Dr. Patricia Mosto

Dr. Patricia Mosto is the new Dean of Liberal Arts, Education and Sciences. Mosto, of Pitman, N.J., succeeds Dr. Joseph E. Nadeau, who retired after serving 11 years as dean. Mosto, who will also serve as a professor of Biology and assumed her roles at Rider on July 1, brings 26 years of teaching experience and 13 years of administrative experience in higher education.

“Dr. Mosto brings a wealth of experience as a faculty member, chair and senior administrative leader to Rider. She is a distinguished academic, and I feel we are most fortunate to have her as a colleague,” said Dr. Donald Steven, the University’s Provost and vice president for Academic Affairs.

Mosto comes to Rider from Rowan University, where she served as interim Associate Dean of the College of Liberal Arts and Sciences and professor of Biology. Mosto’s prior administrative posts included chair of Rowan University’s self study for the Middle States Commission of Higher Education, interim Associate Provost for Academic Affairs and chair of the Biology Department.

“I see the appointment as dean as a problem-solving leader,” Mosto said. “As a teacher you affect the students directly. As a dean, you are leading and supporting colleagues who are teaching them.”

Mosto has conducted research for the Naval Service for Investigation and Development in Argentina, as well as Rohm & Hass, Corp., and the Academy of Natural Sciences in Pennsylvania. She has received research grants totaling more than $1 million dollars.

Mosto holds a doctorate in Environmental Biology from the University of Buenos Aires-Argentina. She also holds master’s degrees in Environmental Science from Drexel University, a master’s degree in Phycology (the study of algae) from the University of Texas at Austin, as well as in Aquatic Biology from the University of Buenos Aires-Argentina.

“I immediately fell in love with Rider and its people,” Mosto said. “I think there is tremendous opportunity for growth. I’m looking forward to the challenges.”

New Marine Aquaria Room Resumes Construction

Oops! Plans to open the new marine aquaria room on the first floor by the start of the fall semester met an unexpected delay. The earth surrounding the underground water holding tanks collapsed and crushed the water holding vessels. Water from recent rain storms saturated the ground and the empty tanks could not withstand the pressure. Undaunted, able-bodied students were recruited to retrench the hole by hand (see photo). Construction soon resumed.

The new facility will dramatically enhance our ability to house marine creatures at Rider. The new facility will have salt water filtration and high tech temperature controls. Passersby will be able to view marine creatures such as fish and crabs, through windows to the main hallway.

This construction project reflects university support of the marine science program and the recognition of active student involvement in this area. The Assistant Dean of Science, Dr. Yavelow, stewarded this project through the planning and implementation phases.

Grand opening of the facility is rescheduled for the spring 2010. Fresh sushi will be served.

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The Science Learning Community (SLC) is a residence hall dedicated to science majors living in proximity to each other. This environment allows the freshmen, as well as the upper-classmen to be surrounded by other science majors who are experiencing similar courses, instructors, and challenges. Upper class mentors help freshmen with homework, revising lab reports and papers, and answering any questions they may have about being a science major or about Rider in general.

The SLC is not limited to science majors living in Switlik Hall. All science majors are encouraged to participate in SLC extracurricular events and academic activities. It does not matter if you live in another residence hall or live off-campus, you are welcome at all SLC events.

In September 2009, the SLC held its annual BBQ. Every freshman was given the opportunity to choose an upper-classman to be their Big Brother or Big Sister as part of the SLC’s Adopt-A-Freshman Program. The program pairs a freshman with an upper-classman for the academic year to serve as a “go-to” person for any questions they may have. Throughout the year the SLC will be holding events that will be geared towards the students participating in the Adopt-A-Freshman Program. This is a great opportunity for the students to interact in a more laid back and non-academic setting.

On Sunday, October 18th, the SLC will be taking a trip to Terhune Orchards in Lawrenceville to pick pumpkins and enjoy other fall favorites such as hot apple cider and caramel covered apples. Once back at Rider, the students can hang out and relax as they paint and carve their pumpkins. Other planned events include movie nights, trips to Philadelphia, and a Sustainable Rider-SLC forest clean up!

Everyone is excited for the many extracurricular events. The SLC is off to a great start!

Program Highlights

The Freshman Honors Research Program provides students new to the department an opportunity to learn about the research conducted by the faculty. Eligible students receive a small stipend and work in faculty labs early in their Rider career. The students get to know the faculty outside of the traditional classroom. The faculty have the opportunity to get students excited about doing research. Most of the students who participate in the freshman honors research program continue to conduct research in faculty labs in their junior and senior years. Students can earn academic credits towards graduation for their independent research projects. For program details and eligibility requirements, see the departmental website.

Undergraduate Research Awards

Megan Kozlowski was awarded an American Society for Microbiology (ASM) Undergraduate Research Fellowship for her research on how to control the hyperactivation of the immune response seen with MRSA infection. Daniel Graham also received an ASM undergraduate research fellowship to study the effects of common anti-cancer drugs on enteric microflora. Mike Ciaramella was awarded an American Society for Microbiology travel award and presented his work at a plenary talk at the 2009 ASM annual meeting. Dan Graham was awarded an undergraduate travel grant to the 2010 American Society for Microbiology meeting. Rick Sando received a Sigma Xi Grant in Aid of Research Award for studying the molecular basis of circadian clocks. Michelle Orlowski, received a Rider University Undergraduate Research Students Award (URSA) for the 2009-2010 academic year to investigate the potential role of the biopharmaceutical erythropoietin in suppressing tumor immunity. Last year Rider URSA scholars from the department, Brittany Baxter and Adam Swider, completed 2008-2009 URSA projects in the research laboratories of departmental faculty.
Katie Faugno, Amy Werda, and Stacy Belgiovène worked over the summer at the Marine Field Station in Tuckerton. The “crab girls” pulled traps, processed crabs (~7,000), tagged-and-released crabs (~1,200), examined brood production of female crabs in the laboratory, and contributed to a variety of other projects. Male and female crabs were evaluated for sperm and seminal fluid stores. Several other students are involved in this effort included: Sara Pethick, Stephen Lempicky, Amber Johnson, and Maggie Shaw.

Gabriella Chaviano initiated studies of the use of Toll-Like Receptors in rescuing T cells suppressed by macrophages. Gabriella Composto completed a study of the T cell biology of the peritoneal cavity characterizing four distinct strains of mice and finding four distinct profiles. Bucks County Community College transfer Tom Bartlett completed a set of cytokine ELISPOT assays in order to study the role of interferon-gamma in macrophage-mediated suppression of immunity. Mercer County Community College intern Ron Russell studied macrophage-like cell lines in vitro and is comparing these cells with freshly collected macrophages.

Courtney Wilson is testing mice to see if they are more susceptible to stress-induced depression-related behaviors after chemotherapy treatment. Megan Cook has begun experiments to see if there are chemotherapy-induced effects on olfaction, another neurogenesis-dependent process that is especially relevant to normal mouse behavior. Middlesex Community College students Ruchik Yajnik and Harminder Singh spent this past summer examining whether chemotherapy-impaired neurogenesis induce anxiety-related behaviors in mice.

Brittany Baxter is studying neural-immune interactions in a mouse model of Parkinson’s disease trying to determine if a bacterial infection increases nervous system susceptibility to a neurotoxin that causes Parkinsonian symptoms. Maggie Bodeep is studying stress mediated increases in skin inflammation in mice to determine if the cytokine interferon-gamma is important is involved with this neuroimmunomodulation. Samar Alsehar is investigating the effects of ketamine on brain dopamine in an animal model of schizophrenia. Sandra Andräw is doing experiments to learn if chemotherapy concomitantly influences neurotransmitters release in immune organs and the numbers of specific subsets of T cells to determine if drug or stress induced changes in norepinephrine contribute to changes in immunity following chemotherapy with cyclophosphamide.

Daniel Isayev, Maulik Patel, Ernst Renondeau, Diego Guzman, and Nikkan Das are screening for circadian gene homologs in the moss-dwelling tardigrade, Hypsibius. Tardigrades, also known as ‘water bears’.
Biology Honors Society: Tri-Beta

The student honor society Tri-Beta (Tri-Beta) will be holding the Science Olympics in the spring 2010. Students from the departments of biology, chemistry, and GEMS will join forces to probe the most pertinent scientific questions of our age. The interdepartmental teams will compete for prizes and pride. The main goal of this competition is to improve the interactions between students from all the science majors on the campus in a fun and entertaining manner.

Each event in the Science Olympics will involve pursuit of fun-filled content from the core courses in each science major. To be successful each team will need a representative from each of the science majors. Join the fun! Let out your enthusiasm for science! May the biggest geeks be victorious!

Fund raising events to support the Science Olympics include a bake sale and a campus wide T-shirt sale.

Recent graduates: Where are they Now?

- **Josh Goldberg**, research technician, Ninirx Therapeutics
- **Michael Ciaramella**, Master's program, University of Prince Edward Island, Canada
- **Val Sodi**, research technician in Microbiology at Bristol Myers Squibb
- **Giselle Sylvester**, MS program, University of Houston
- **Lauren Sbarro**, Environmental Science Teacher, Capital Prep Charter School, Trenton
- **Joe Robinson**, Burlington Township HS science teacher
- **Amanda Pinto**, laboratory technician, PharmaSeq
- **Elise Ryan**, Middle School science teacher, Montgomery Township
- **Adam Swider**, laboratory technician, Medical Diagnostic Laboratories
- **Jennifer Gallegos**, Physician Assistant program, New York University
- **Sheena Gayomba**, PhD program, Cornell University
- **Rick Sando**, PhD program, Scripps Institute for Neuroscience
- **Jill Loveland**, masters teaching program, SUNY Stonybrook campus
- **Michele Matricardi**, masters program, George Washington University
- **Tom Egizi**, masters program, University of Medicine & Dentistry of New Jersey
An increasing number of our graduates in Biology and Behavioral Neuroscience are choosing careers in the allied health professions. These include careers as physician assistants, physical therapists, nurses, occupational therapists, and related careers. Our graduates have been accepted into nationally recognized graduate training programs at schools such as Seton Hall University, University of Medicine & Dentistry of NJ, Thomas Jefferson University, New York University, and George Washington University.

For more information including details of our relationship with Thomas Jefferson University see our pre-allied health website at: http://www.rider.edu/172_2339.htm

### Students Research at National Meetings

**Adam Swider** completed his Rider University Undergraduate Research Student Award (URSA) supported research. He presented his poster “Peritoneal B Cells Responding to CD40 Ligation Resist Macrophage-mediated Suppression” at the American Association of Immunologists (AAI) Meeting in Seattle, WA. **Megan Kozlowski** also presented her work at the AAI meeting. Her poster, “Cytokine Treatment of Macrophage Suppression of the MLS Response”, was the culmination of work done by a number of students (Dan Silberman; Amanda Bucknum; Robin Matlack). **Michael Ciaramella** presented a talk at the General Meeting of the American Society for Microbiology (ASM) entitled, "Isolation of marine haloarchaea from a mid-Atlantic salt marsh", while **Valerie Sodi** presented a poster entitled" The archaeal circadian rhythm kaiC homologs, circ1 and circ2, are regulated by light and dark cycles". Listed as co-authors on this poster were **Jennifer Smith** and **Jennifer Nannen**. **Dan Graham** presented a poster at the ASM meeting titled “Monitoring the viability of enteric flora in response to 5-fluorouracil using a quantitative PCR approach”. **Chris Mondie** and **Kelley Vandergrift** will attend the 2009 Society for Neuroscience meeting to present their research on the impairment of hippocampal neurogenesis by chemotherapy and the effects this has on learning and memory. **Joe Park** will present a poster of his work studying cDNA encoding mammalian casein kinase I epsilon at the annual Sigma Xi national meeting held this year in Houston, TX.

### Program Highlights

An increasing number of our graduates in Biology and Behavioral Neuroscience are choosing careers in the allied health professions. These include careers as physician assistants, physical therapists, nurses, occupational therapists, and related careers. Our graduates have been accepted into nationally recognized graduate training programs at schools such as Seton Hall University, University of Medicine & Dentistry of NJ, Thomas Jefferson University, New York University, and George Washington University.

For more information including details of our relationship with Thomas Jefferson University see our pre-allied health website at: http://www.rider.edu/172_2339.htm
Kelly Bidle
Dr. Bidle studies the genetics of the archaea. With the support of the National Science Foundation, active student projects in her lab investigate the expression of genes activated in cell death in these unicellular prokaryotic organisms. Her students are involved with characterizing the optimal environments for the growth of marine archaea, and exploring the effects of anticancer drugs on gut microflora. Dr. Bidle teaches Environmental Microbiology and Genetics.

Julie Drawbridge
Dr. Drawbridge studies kidney development in amphibians, using molecular genetic techniques along with microsurgery to understand how the excretory system develops in embryos. With support from the National Science Foundation, students in her lab help to maintain an extensive frog and Xenopus colony. Dr. Drawbridge teaches courses in development, biochemistry, evolution, and introductory biology. Dr. Drawbridge is the chair of the department.

Laura Hyatt
Dr. Hyatt is a plant population biologist who studies the ecology of biological invasions. Students in her lab spend a great deal of time outdoors and in the greenhouse to understand the regulation of population growth in garlic mustard, an invasive species from Europe. Using plant physiological techniques and mathematical modeling, they seek to develop environmentally appropriate control strategies for this plant. Dr. Hyatt, who teaches botany, ecology and introductory plant biology is on sabbatical in the fall 2009.

Paul Jivoff
Dr. Jivoff specializes on marine invertebrates, especially crabs. Students in his lab are working on field and lab projects that investigate how human-generated changes in the environment impact the ecology of marine organisms. They use field surveys, sampling techniques and telemetry to document changes in the distribution of important marine organisms. Dr. Jivoff teaches introductory and marine biology courses.

Jonathan Karp
Dr. Karp studies the interaction between the nervous system and the immune system. Students in his lab use behavioral, neurochemical, and cellular assays to examine the influences of stress, infection, and/or psychoactive chemicals alter the brain, the immune system, and behavior. Dr. Karp teaches behavioral neuroscience, human biology, and neurobiology. He is the co-instructor of the introduction to the integrated science course for students studying to be middle school science teachers.

Phil Lowrey
Dr. Lowrey studies the molecular components of the circadian clock in mammals. Students in his lab use directed mutation techniques of genes to dissect the role of various intracellular molecules, including casein kinase I z, in regulating the biological clock in cells. Students in his lab also use bacteria to produce mammalian proteins. Dr. Lowrey teaches cellular and molecular biology and behavioral neuroscience courses.

Jim Riggs
Dr. Riggs uses tissue culture and cell sorting techniques to study the immune system. Students in his lab work on macrophages, innate suppression of immunity and the role of the immune system in cancer. Dr. Riggs won the Ana Giovannelli Distinguished Teaching Award for his commitment to nontraditional learners. Dr. Riggs recently received a three year grant from the National Cancer Institute entitled “Macrophage Density Regulates T Cells”. He teaches immunology, medical microbiology and cellular and molecular biology. He is the premedical advisor.

Todd Weber
Dr. Weber studies neurogenesis in mice. Students in his lab use behavioral, neuroanatomical, and genetic tools to understand how chemotherapy interferes with memory function and depression-related behaviors. He also studies circadian rhythms. His research is funded by a grant from the National Institutes of Health. Dr. Weber teaches introductory biology and behavioral neuroscience courses. He is the faculty advisor for the Science Learning Community and the pre-allied health program.