IN MEMORIAM – DR. REGINALD SHAGAM

This issue of Surf and Turf is dedicated to the memory and career of Dr. Reginald Shagam, a member of the GEMS faculty from 1987 until his retirement in 1998. Reg died on Friday, April 19, 2008, in Beersheba, Israel due to complications from heart disease. Affectionately referred to as "El Tigre De Los Andes" by many who knew him, Reg was an outstanding and dedicated teacher and a world renowned and respected researcher, primarily in the areas of structural geology, tectonics, and the geology of Venezuela, Columbia, Israel, and the Caribbean region. Born in South Africa, Reg received his Ph.D. from Princeton University and taught at Franklin and Marshall College and the University of Pennsylvania before coming to Rider. He will be greatly missed by those of us at Rider and around the world who were fortunate enough to have been his friend, colleague, or student.

GEMS NEWS AND STUDENT RESEARCH AND AWARDS

Congratulations to Dr. Hongbing Sun on his successful promotion this past January to the rank of Professor. Given all that he does for GEMS and its students, the promotion was richly deserved.

Dr. Sun and Dr. Jonathan Husch are Co-Principal Investigators on a grant awarded funding by the National Science Foundation for the amount $155,291. The grant, with Dr. Feng Chen (Chemistry) as Principle Investigator, will allow for the purchase of a new state-of-the-art X-ray diffractometer, associated equipment, and software for research and teaching purposes.

Plans for the relocation of the Richard R. Alexander Marine Aquarium Lab have been revised, although fundraising for the project continues to go well. Originally slated to be moved this past summer into a renovated space on the first floor of the Science Building, the plan now is to build a small addition (approx. 20’ x 30’) connected to the back of the building to house the lab. The specific date to begin construction depends on funding, but summer 2009 appears to be the general time frame. An architect has been hired to work with Dr. Paul Jivoff (Biology), Dr. Gabi Smalley, and other GEMS faculty on the design of the new facility.
The renovation of GEMS teaching and lab areas also was postponed from this past summer, although one of the classroom/lab spaces, SCI109, was partially renovated. Again, preliminary plans call for the entire GEMS suite of rooms on the first floor to be completely renovated in the summer 2009 time frame.

The Integrated Sciences and Math (ISM) major continues to grow at a very rapid pace, with almost 30 declared majors spread over all four areas of concentration (Math, Life Sciences, Physical Sciences, and Earth Sciences). The first five graduates of the program completed the major this past May. Including the ISM major, the department now has over 80 majors and minors, the largest number of students in GEMS history!

The department has reopened the search for Dr. Alexander’s replacement, with the successful candidate starting in September 2009. Despite receiving over 90 applications from environmental scientists from all over the world this past year, we were unable to hire an appropriate candidate. Fortunately, Dr. William Gallagher (see separate story) will be here on a full-time basis as a Visiting Assistant Professor for the 2008-2009 academic year.

In addition to Dr. Gallagher, GEMS has continued to use a number of excellent adjunct faculty to teach many of our courses. Among them are Dr. Kenneth Najjar (Environmental Geology), Branch Manager for the Delaware River Basin Commission, and Ms. Danielle Schmitt (Oceanography), Instructional Laboratory Manager for the Department of Geosciences at Princeton University. In addition, Dr. Bridget Ams and Ms. Jennifer Elder Brady will be teaching Oceanography and Structural Geology, respectively, for GEMS this fall. Thanks to all GEMS adjunct faculty for the tremendous job they do educating our students.

GEMS students and faculty were very active over the past year in presenting the results of their collaborative research. Kelly Lucarino ’07, Carl Natter ’09, and Dan Carlson ’10 were co-authors with Dr. Sun on a paper entitled, Road Salt Application and Its Impact on Water Quality of the Delaware River, presented at the 93rd Annual Conference of the New Jersey Water Environmental Association in Atlantic City. The poster won the second place award for best undergraduate student poster at the conference. Congratulations!

Kelly Lucarino ’07 also co-authored a poster presentation with Dr. Sun on Changes of Salt Levels Responding to Road Salt Application in Winter Runoff Water and the Trend of Salt Level in the Delaware River, presented at the 2007 Annual Meeting of the Geological Society of America in Denver, Colorado.

Also at the 2007 GSA Annual Meeting, Matt Nelson ’09 co-authored a poster presentation with Dr. Sun, Dr. Husch, and Dr. Chen (Chemistry) on the Effect of Structural Water in Clay Minerals on the Estimation of Soil Organic Matter Content by the LOI Analytical Method. A revised manuscript on this work has been submitted for publication to the Soil Science Society of America journal.

Carey Sliko ’08 and Susan Zabrocky ’09 Present their Poster in Newfoundland.
Carey Sliko ’08 and Susan Zabrocky ’09 co-authored a poster presentation with Dr. Smalley entitled, Two Strains of the Mixotrophic Dinoflagellate Prorocentrum Minimum Differ in their Ability to Utilize Organic Phosphorus For Growth, at the 2008 Annual Summer Meeting of the American Society of Limnology and Oceanography (ASLO) in St. John’s, Newfoundland, Canada.

Ken Kacperowski ’06, Tim Swavely ’07, and Heather Warren ’07 co-authored a poster presentation at the 2007 GSA Annual Meeting with Dr. Reed Schwimmer entitled, Relationships among Grain Size, Infiltration Rate, and Foreshore Slope on New Jersey Beaches. A manuscript on this work has been submitted for publication in the journal, Estuaries and Coasts.

Finally, a large number of GEMS students received awards for their many academic accomplishments. Twenty-seven GEMS students earned Dean’s List recognition for the fall semester and 36 earned that recognition for the spring semester. Michael Ciaramella ’09 was inducted in Sigma Xi and Michael Mancino ’09 and Susan Zabrocky ’09 were inducted into the Tri-Beta Honor Society. Samantha DeLaunay ’08 and Krista Fincke ’08 graduated with honors in Integrated Sciences and Math, and Carey Sliko ’08 graduated with honors in both Marine Sciences and Biology. Carey also received full tuition remission and a stipend to attend Georgetown University’s Post-Baccalaureate Teacher Certification Program. Congratulations to all our students for all their hard work!

GEMS COMPLETES ITS FIRST GIS COURSE

Introduction to Geographic Information Systems (GIS) (ENV-201) was taught for the first time this past spring semester by Dr. Sun. The course introduced the basic concepts of map projections, coordinate systems, and database management to students through the usage of ArcGIS 9.2 software. The creation of various thematic vector and raster maps and design and query of the attribute tables associated with these maps were taught throughout the semester. The class created a watershed map of Mercer County, a land-use map of Lawrenceville Township, and a map of the DEP-designated contamination sites around Rider University. In addition, a new visitor’s map of Rider’s Lawrenceville campus was created and can be downloaded from http://users.rider.edu/~hsun/direction.bmp. A poster exhibiting a compilation of course projects (see picture) was presented at Rider’s spring Science Fair by two of the GIS students, Megan VonDeesten and Alyssa Tomlinson. The response to the presentation was very enthusiastic!

DR. WILLIAM GALLAGHER: A “DINO”NAMIC GEMS ADDITION

Dr. William Gallagher has joined the full-time GEMS faculty as a Visiting Assistant Professor for the 2008-2009 academic year. Until his recent retirement in 2008, Bill was the Assistant Curator of Natural History, Collections and Exhibits, Natural History Bureau, New Jersey State Museum, Trenton, NJ. Bill received his Ph.D. in geology from the University of Pennsylvania in 1990 where his doctoral dissertation investigated the Cretaceous/Tertiary boundary and its associated mass extinction event. He has traveled the world during the course of his field
Dr. Bill Gallagher studies on dinosaurs and other vertebrate species, including stops in Iran, Egypt, China, Russia, Argentina, Ireland, England, the Netherlands, Italy, and Switzerland, as well as much of eastern North America and most of the American west. In addition to adjunct teaching the Mesozoic Ruling Reptiles course at Rider, Bill has taught both undergraduate and graduate courses at numerous other institutions, including the University of Pennsylvania, Rutgers University, Drexel University, Richard Stockton College, and Kean University. He also has authored over 70 scientific papers, articles, and abstracts, as well as the popular book, When Dinosaurs Roamed New Jersey, and has appeared on numerous television shows about dinosaurs. His current research interests include the paleoecological dynamics of mass extinction events, especially the Cretaceous/Paleogene (K/P) Boundary mass extinction that involved the disappearance of the dinosaurs.

For the 2008-2009 academic year, Bill’s primary teaching responsibilities will include the Earth Materials and Processes Lab, Introduction to Environmental Sciences, Marine Life Through Time, and Mesozoic Ruling Reptiles. He also has promised to give some very interesting seminars on dinosaurs and to lead field trips to prime dinosaur fossil collecting localities. We could not be more pleased to welcome him to the department.

FIELD MARINE COURSE: HONDURAS

A tropical island in the Caribbean Sea, cabins nestled in the mangroves, coral reefs just one step off our deck, the ocean teaming with colorful fish, and dolphins playing in the water – in short: paradise. That’s where 15 Rider students and two faculty spent 15 days studying the marine environment this past May. The course, MAR-229: Introduction to Field Marine Science: Tropical Environments, was team-taught by Dr. Gabriela Smalley, Assistant Professor of GEMS, and Danielle Schmitt, Adjunct Instructor at Rider and lab manager at Princeton University. The group stayed at the Institute for Marine Science, part of Anthony’s Key Resort on Roatan, the largest of Honduras’ three Bay Islands.

The journey to paradise started at 3:45 am in the Rider parking lot, but by early afternoon, we were approaching the only runway of the small airport, looking down on the long but narrow island that was to be our home for the next 15 days. And before we knew it, we were adjusting to the heat and humidity (no air-conditioning in our cabins) with the help of the pool and the cool drinks served by the dining hall staff. We also were getting acquainted with the taxi boat that would take us to class and to three-course meals every day, as well as with the occasional
resident geckos and giant bugs in our cabins (rumor has it that some of those bugs were so big that you had to open the door to let them out...).

Over the next two weeks, we explored a number of marine environments, mainly by boat and with snorkel and SCUBA gear. These included a seafan community (with Bob Marley wafting over from the nearby beach), a rocky intertidal area (one of the most scenic locations on Roatan), fish assemblages inside and outside the local marine reserve (getting a work-out from swimming against the current), a mangrove root community (stay away from those upside-down jellyfish), seagrass beds (watch out for the fire worms!), and coral reefs (is that an elkhorn or a fire coral? Ouch! Never mind).

We spent an entire day with the dolphins of Anthony’s Key Resort, holding them, snorkeling with them, learning about dolphin biology and training, and trying our training skills first-hand (with varying degrees of success). We also visited a hydroponic lettuce farm and found out where our salads have been coming from all week. After an interesting taste experiment involving limes and a berry ominously called the “taste killer,” we headed down the road to further explore the island’s history and culture.

Students also interviewed several local residents about life on Roatan, tourism, and marine resources, and came back that evening with some very thought-provoking reports. Finally, the last three days were spent on independent research projects, studying anything from habitat selection of Donkey Dung sea cucumbers to retraction rates of Christmas Tree worms.

During our well-deserved day off, we kept busy by zip-lining through the tree canopy of Roatan, horseback riding, SCUBA diving, snorkeling, kayaking, or just hanging out by the pool and reveling in the fact that no lab report was due that evening. Rider University was also well represented at the weekly Fiesta Night organized by Anthony’s Key Resort,
winning the limbo contest two weeks in a row (but unfortunately losing out at the hermit crab races)!

Overall, we had a great time (even with tropical storm Arthur making things wet and slippery for the last two days), and many of us are already planning our return to Roatan! If you were unable to come along on this trip, stay tuned for our next Field Marine Science course in Summer 2009. We will be visiting the Florida Keys, and staying at the Newfound Harbor Marine Institute.

**NATURE’S BUSINESS: ECUADOR AND THE GALAPAGOS: WALKING IN THE FOOTSTEPS OF DARWIN**

Can you smell the evolution? Well, if you’re hiking or snorkeling around one of the amazing islands of the Galapagos Archipelago, located 600 miles west of the Ecuadorian coast of South America, you most certainly can. And that’s exactly what all of us on the CBA-316: Nature’s Business: Ecuador and the Galapagos trip did for seven days as we sailed from volcanic island to volcanic island on the Motor Yacht *Floreana*. Walking where Darwin walked, seeing what he saw, observing the species he observed, it was, without exception, one of the most unique, enjoyable, and educational trips any of us had ever experienced.

![The Motor Yacht Floreana and Panga](image)

Twenty-one students from Rider and other colleges, along with six Rider faculty and four family members, traveled this past January throughout mainland Ecuador, including the cities of Quito and Guayaquil, and the Galapagos Islands, learning first hand about the country’s history, culture, geography, geology, ecology, environment, climate, biodiversity, economy, and ecotourism industry. In addition to lots of reading and fact finding about Ecuador and the Galapagos prior to traveling, each student in the course kept a detailed journal during the trip and wrote a research paper on a faculty-approved topic of his/her choice after returning to Rider. Team-taught by Dr. Susan Denbo, Professor of Business Policy and Environment, Dr. Cynthia Newman, Associate Professor of Marketing, Dr. Jonathan Husch, GEMS Chair and Professor of Geological and Environmental Sciences, and Dr. Julie Drawbridge, Chair and Professor of Biology, the 11-day trip was the culminating experience of the semester-long course sponsored by the Rider University College of Business Administration. Dr. Laura Hyatt and Dr. Paul Jivoff, Associate Professors of Biology, traveled with us as well and shared their expertise on plant ecology and marine biology, respectively.

Because the 75-foot *Floreana* could only accommodate 16 guests at a time, we had to sail in two separate groups over consecutive weeks. The first group included GEMS students Carey Sliko ’08, Alyssa Tomlinson ’08, and Charlie Zielinski ’10. The second included GEMS students Alicia Audette ’08, Michael Ciamarella ’09, and Susan Zabrocky ’09.

![Overlooking Quito and the Andes](image)
Both groups began their journey with flights to Guayaquil and then Quito. The historic capital city is located in a beautiful Andean valley over 30 miles long just south of the equator and at an elevation of over 9,000 feet. Despite a touch of altitude sickness for some, we spent two days traveling around Quito and the surrounding area, including visits to a broccoli farm, a flower plantation, the local Coca-Cola bottling plant, and a factory for the Pinto clothing company, the Ecuadorian equivalent of Gap.

After a relatively short flight to the Galapagos airport on Baltra Island (and a thorough spraying of the inside of the airplane to kill any invasive insects), we were transferred by bus and panga (a small motorized rubber raft) to the Floreana. The first group visited islands in the central and northern parts of the archipelago, including Santa Cruz, Genovesa, Santiago, Bartolomé, Rabida, Isabela, and Fernandina. The second group visited islands in the southern and eastern parts of the chain, including Santa Cruz, North Seymour, Santa Fe, San Cristobal, Española, and Santa Maria (Floreana).

Regardless of where you went, the scenery was stark and beautiful, the vegetation was varied and unique, and the wildlife was diverse, abundant, and, for the most part, very tame and quite approachable. Whether it was fur seals, sea lions, dolphins, Galapagos penguins, red-footed boobies, blue-footed boobies, Nazca boobies, frigate birds, Galapagos hawks, Darwin finches, white-tipped sharks, marine iguanas, land iguanas, lava lizards, marine turtles, or giant tortoises, it was no problem observing them all up close and personal. In fact, it was not unusual to spend 15 minutes or more in the water swimming and playing with two or three
very inquisitive young sea lions, who liked nothing more than to blow bubbles in your face and then dart off, only to return seconds later to start the game all over again.

A giant tortoise on Santa Cruz

For the first group, one of the highlights of the trip was the on-board ceremony marking our four crossings of the equator. All the pollywogs (those of us who had not previously crossed the equator on a boat) had to eat some raw fish, be given a ceremonial name, and sacrifice a lock of hair to Neptune, god of the sea, in order to be made a shellback (a veteran equator crosser) by Captain Freddy Penaherrera, master of the Floreana. For the second group, who stayed in the southern hemisphere, their on-board highlight was the sudden decision by Paul Jivoff and his fiancée, Mary Kite, to take the plunge (both literally and figuratively) and get married, with the rather unique and impromptu ceremony officiated by the apparently all-powerful Captain Fred (yes, it’s legal)! Congratulations to the very happy couple from everyone at GEMS.

So despite the somewhat limited space on the Floreana, the surprisingly cool ocean temperature, and the clothes that never quite dried, everyone was sad to see their seven days on the water come to an end. Like previous Nature’s Business course trips to Costa Rica and Iceland, the Galapagos course and trip was a great way to learn, travel, make new friends, see amazing sights, and experience many new things. However, if you’ve missed out on the chance to join us on previous trips or regret not having been part of the Galapagos experience, don’t despair, because new courses and trips are being planned for 2009 and beyond, including India in January 2009, South Africa in May 2009 (trip only for Rider students, alumni, family, and friends), and Chile or Panama in January 2010. Even if you don’t take the course for credit, you can still participate in the trips if space is available. Contact either Dr. Denbo (denbo@rider.edu) or Dr. Husch (husch@rider.edu) for more details. See you soon at someplace interesting, fun, and educational!

ALUMNI UPDATE

Once again, many GEMS alumni either stopped by the department for a visit or contacted us this past year with their latest news. If you haven’t done so recently, please feel free to bring us up to date with what is going on in your life. You can find additional alumni news, including specific contact information, on our alumni web page, located at http://www.rider.edu/172_1711.htm. As always, we look forward to hearing from you.

Doug Sturgis ’83 is a North American Field Studies and 4D Seismic Interpretation Team Supervisor for ExxonMobil in Houston, TX. He has over 20 years with ExxonMobil and spent three years (2001-2004) in Malaysia, where he also was able to travel to China, Thailand, Nepal, New Zealand, and Australia. Doug says the best part of being overseas was hiking in the Himalayas and diving and snorkeling with his family on the island of Sipadan, Malaysia, and on the Great Barrier Reef. Doug and his wife of 22 years, Melissa, have two children, Nathan, 19, and Jennifer, 14, and live in Kingwood, TX. At the end of August, however, the entire family will move to London where Doug will begin his new position as Supervisor for North Africa and Europe Field Studies for ExxonMobil.
Tammy Marquart Grillon '88 is a Senior Project Scientist with Weston Solutions, Inc. in their Edison, NJ office. Tammy, along with her husband and two daughters, live in Middletown, NJ.

Cindy Benkert Parmentier '95 and her husband, Tim, live in St. Petersburg, FL and are enjoying their new son, born in September 2007. Congratulations!

Kristin Van Nest Romanok '95 has been a Hydrologist with the USGS in West Trenton, NJ for the past 11 years, specializing in water quality. She and her husband, Craig (Rider '94) live in South Brunswick and have two children, Clayton and Samantha. Kris mentioned that her office is always looking for summer interns and part-time or volunteer student workers.

Stacy Aron '97 just completed her ninth year of teaching earth science, biology, and oceanography at Delaware Valley Regional High School in Frenchtown, NJ and says she still loves every aspect of it. Stacey is starting her work on a Masters Degree in Geosciences through a distance-learning program with Mississippi State University. Congratulations on all accounts!

Mike Eldert '97 graduated from the Sentara School of Health Professions' Registered Nursing Program and received his RN license in November 2007. Congratulations! Mike, his wife, Tanya, and daughter, Sianna (see photo), live in Virginia Beach, VA. Mike now is working as an Emergency Department Nurse at Sentara Leigh Hospital. After 14 years as an EMT, he still is volunteering with Virginia Beach EMS, the largest volunteer EMS system in the United States, and teaching CPR to new incoming EMTs.

Tanya Brown '03 finished her Master's degree in biotechnology at SUNY Buffalo's School of Medicine. Her thesis was entitled, *Differential Gene Expression of an Anthox-like Gene in the Gorgonian,* *Pseudopterogorgia elisabethae.* Congratulations! Tanya is now working full time as a lab technician for the University of Buffalo's School of Pharmacy and Pharmaceutical Sciences. She also is certified as a scientific diver and will dive for the Buffalo Underwater Reef Research (BURR) Lab.

Rob Croskey '03 has moved to New Port Richey, FL (on the Gulf coast just north of Tampa) where he is an Environmental Scientist with Alpha EMC. His duties include responsibility for the EPA's National Pollutant Discharge Elimination System (NPDES) permits. Rob says he is using his geology background extensively and also enjoying Florida's sunny and warm weather, as well as getting the chance to go fishing and diving in his spare time. More importantly, Rob recently became engaged to Kathryn Knauss (Rider '07) with the wedding planned for December 2008.

Bethany Eden '05 received her Masters in Biological Oceanography from the Virginia Institute of Marine Sciences (VIMS) of The College of William and Mary. Congratulations! Bethany now is working for the Virginia Marine Resources Commission (VMRC) in Newport News, VA as a Fisheries Management Specialist. The VMRC regulates all commercial and recreational marine finfish and shellfish harvests, as well as overseeing habitat management and permit requests. Bethany will be in charge of managing the entire commercial finfish and shellfish catch reports.
database, running statistics, advising state committees on the status of various fisheries, and dealing with many of the specialty permits and commercial fishing licenses and related issues for the Commonwealth of Virginia. Bethany also gave a talk at Rider in October 2007 entitled, The Effect of Mesoscale Eddies on Zooplankton Community Structure in the Sargasso Sea, as part of Rider’s Science Seminar Series. She did a great job and both students and faculty enjoyed it immensely.

**Dan Hewins ’07** has started his doctoral program in ecology and evolution at New Mexico State University. Dan was awarded an NMSU Graduate Assistant Tuition Fellowship (only 56 offered each year with the expressed purpose to “recruit outstanding graduate students”), which provides for a three-year teaching assistantship stipend and full-tuition grant. He also was elected to be the Secretary-Treasurer of the Biology Graduate Student Organization. Congratulations on all accounts! Dan also is working in the lab of Dr. Heather Throop, a biochemist, looking at nutrient cycles in arid systems. He will be focusing on the physical drivers of leaf litter decomposition and the formation of soil organic matter and carbon dioxide.

**Kelli Lucarino ’07** is an environmental project scientist working for Weston Solutions, Inc., a global environmental consulting firm. She says her job is going really well and that she has spent a lot of time in the field at company projects in Puerto Rico and the U.S. Virgin Islands, as well as the World Trade Center site in New York City doing indoor air sampling. When she is in the office, Kelli works on site assessments reports for many of the Caribbean projects.

**Brandi Novak ’07** is living in Glen Gardner, NJ and teaching science at Hunterdon Central Regional High School in Flemington.

**Tim Swavely ’07** is an Environmental Scientist/Geologist with Stell Environmental. Tim also will be in Texas to work for four months with the U.S. Army Corps of Engineers on a coring project.