Twenty-four students from Rider, including one recent alumna, four Rider faculty, and one family member traveled this past January throughout the central and southern Galapagos, learning first hand about the history, culture, geology, geography, ecology, environment, climate, biodiversity, economy, and ecotourism industry of the islands. In addition to lots of reading and research about the Galapagos during the fall semester prior to traveling, each student in the Nature’s Business course, team taught by Dr. Cynthia Newman, Associate Professor of Marketing, and Dr. Jonathan Husch, GEMS Chair and Professor of Geological and Environmental Sciences, 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. Students in the Documenting Cultures Through Travel Course, taught by Dr. Barry Janes, Professor of Communications, focused on videoing and photographing in exquisite detail the amazing sights and sounds of the islands, including the local flora, fauna, and people. The eight-day trip was the culminating experience of the two courses, co-sponsored by the College of Liberal Arts, Education, and Sciences and the College of Business Administration.

Dr. Bill Gallagher, Adjunct Assistant Professor of Paleontology, also traveled with the group, sharing his vast expertise on evolution, geology, and marine and terrestrial ecology with the students and other faculty. And rounding out the group was MaryAnne Janes, Dr. Janes’ wife, who provided much needed care and support when anyone came...
down with the much-dreaded, 24-hour stomach bug!

On this trip, everyone stayed at the lovely Hotel Silberstein in Puerto Ayora, the largest town on Santa Cruz Island and the commercial center of the Galapagos. Most days, the group would take a chartered boat, typically a very comfortable, if not luxurious, 30-40 foot yacht, to a different island for a full day of hiking, snorkeling, and learning.

The 11 GEMS students who participated were Jillian Baumann ’13, Danielle Campanella ’14, Julianna Ciccarelli ’14, Pilar Ferdinando ’15, Katharine Jaworski, ’16, Kelly Krolik ’14, Taylor Krolik ’14, Laura Moritzen ’15, Rachel Nangle ’16, Stephen Schwartz ’15, and Katelyn White ’14. The individual islands visited were Baltra, Bartolomé, Floreana, North Seymour, Santa Cruz, Santa Fe, Santiago, and South Plaza. On Santa Cruz alone, we visited a number of locations, including Bahia Bachas, Bahia Tortuga (aka the “march of death” for some), the Charles Darwin Research Center, Punta Carrion, and the island’s central highlands to walk through a lava tube and view some giant tortoises.

Regardless of where we went, the scenery was stark and beautiful, the geology was interesting and obvious, the vegetation was varied and unique, and the wildlife was diverse, abundant, and almost always very tame and quite approachable. Whether it was seals, sea lions, dolphins, Galapagos penguins, red-footed boobies, blue-footed boobies, Nazca boobies, frigate birds, Darwin finches, white-tipped reef sharks, manta rays, marine iguanas, land iguanas, lava lizards, marine turtles, giant tortoises, or many types of tropical fish, 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 a family of very inquisitive 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. We even got the chance to snorkel lazily along with some very large green sea turtles that were feeding in shallow water and seemed to be totally oblivious to our presence.
Tag anyone? A sea lion “plays” with us near Santa Fe Island.

Nature’s Business course for credit, you can still participate in the trip if space is available. Contact either Dr. Newman (cnewman@rider.edu) or Dr. Husch (husch@rider.edu) prior to next summer for more details. Hasta luego!

GEMS SEMINAR SERIES

Four GEMS Seminars were held during the year covering topics in geology, marine sciences, and conservation ecology, including two presentations by GEMS alums! Dr. Alison Golinski (Marine Sciences ’06) kicked off the first seminar in October. Alison recently completed her Ph.D. in Ecology and Evolution at Rutgers University. She presented her dissertation topic: “The role of testosterone in the evolution of different patterns of sexually dimorphic traits in gecko lizards.” Alison was hosted by Gabi Smalley, who had mentored her undergraduate research while at Rider University.

In November, Lyndon Estes, a conservation ecologist from Princeton University who studies southern Africa, presented “Researching Environmental Change: From Antelope to Agriculture.” Several environmental science majors have expressed an interest in conservation ecology recently and Lyndon met with those students to discuss careers in this field.

At the start of the spring semester (and on Valentine’s Day no less!), Bethany Eden Smith (Marine Sciences ’05) returned to share her love of ocean exploration as an aquanaut aboard the Exploration Vessel Nautilus to explore a shipwreck in the Gulf of Mexico. She presented "To Inner Space and Beyond: Discoveries of a 2013 Educator at Sea." After receiving her M.S. in Biological Oceanography from The College of William and Mary's Virginia Institute of Marine Science, Bethany now teaches at the Chesapeake Bay Governor's School in Warsaw, VA.

So, despite the many really early mornings, the often long and hot hikes, and the numerous flights and nearly 24-hour return trip home, everyone was very sad to see their seven days in the islands come to an end. Like previous Nature’s Business course trips to Costa Rica, Ecuador, Iceland, Panama, and Peru, the Galapagos course and trip were a great way to learn, travel, make friends, see amazing sights, and experience many new things.

The beautiful view from South Plaza Island.
Closing out the academic year, our Department received a grant to host a speaker from GeoPRISMS program, a National Science Foundation funded program to study plate tectonics. We invited Dr. Chris Scholz, from Syracuse University, who spoke to a large group of faculty and students about “Climate Change and Human Origins: New Discoveries through Scientific Drilling in East Africa’s Great Rift Valley.” While his research uses sedimentary records from underneath Lake Malawi, his presentation was a great finale for our seminar series since it had clear interdisciplinary connections across scientific disciplines including environmental science and biology. Hopefully, you were able to attend these talks, but if not, stay tuned for those during the upcoming academic year!

**GEMS NEWS, HONORS, AND AWARDS**

It’s been another fantastic year for GEMS with an incredible amount of faculty and student activity, particularly when it comes to research presentations and publications. In fact, GEMS faculty and students published a combined total of 11 peer-reviewed journal manuscripts (three with a total of six student co-authors) and made 13 poster or talk presentations (seven with a total of 10 student co-authors) at regional, national, or international meetings! Although it isn’t absolutely certain, it is believed that this amount of research related production is the most in department history. And, as of May 1, 2014 GEMS enrollments, including ISM majors, stood at approximately 135 total majors and minors, an all-time high. Again, it’s nice to be so popular!

As far as GEMS faculty are concerned, Dr. Kathleen Browne officially rejoined the department this past January as a full-time faculty member after serving for the last ten years as Assistant Provost and Director of the Bristol Meyers-Squibb Teaching and Learning Center. While still serving as the Director of CONNECT-ED and Co-Director of the University’s Discovery Program, Dr. Browne also was the lead author of two published journal articles and one conference paper, as well as a co-author on one conference paper. In addition, she brings with her five ongoing grants to Rider worth over $1 million dollars!

Probably the single most important event to occur this past year in the department was the promotion of Dr. Dan Druckenbrod to Associate Professor with tenure. He also continued as the Sustainability Studies Program Director, was cited by an SLAS Honor Society inductee for his teaching excellence and inspiration, and received a “Certificate of Recognition” by graduating seniors who made a donation on his behalf to the Senior Class Scholarship Fund. Congratulations to Dan on all accounts! Dr. Druckenbrod was the lead author of one journal article with Nicole Chakowski ’12 and one conference paper, as well as co-author on three conference papers, including one with Jason Dallas ’14. In addition, he is a Co-PI on two large, multi-institutional grant proposals currently in review, one with the NSF and one with the NEH.

Dr. Bill Gallagher has completed his three-year Discovery Program visiting faculty appointment, and although we will lose him as a full-time member of GEMS, we are very happy to know that he will continue as an Adjunct Professor and teach many GEMS courses over the next few years, including Mesozoic Ruling Reptiles (aka “The Dinosaur Course”), Marine Life Through Time, and Marine Vertebrates. Dr. Gallagher also was the lead author of two published journal articles and two conference papers, as well as a co-author on two additional journal articles, one with Kate Krsnak ’13, and one conference paper with Amber Barton ’14 and Muhammad Sarwar ’16.

Dr. Jonathan Husch completed his eighth year as GEMS Chair, still, miraculously, without completely ruining the department! He also was a participating faculty and trip leader for the Nature’s Business course that took a group of 24 Rider students to the Galapagos
Islands this past January (see separate story). In addition, Dr. Husch was a co-author on three published journal articles, one with John Alexander ’14, Brita Gove ’13, Eric Pezzi ’13, and Nicole Chakowski ’12, and two conferences papers, one with that same group of student co-authors. He also was a recipient of the Rider University “You’ve Made a Difference” Award for his freshmen advising.

Dr. Reed Schwimmer served as a Head Senior Judge for the Mercer County Science and Engineering Fair, as well as writing and reviewing questions for the PRAXIS teacher certification exams and leading the department’s assessment activities. Reed continues to serve as the department liaison to the Geological Society of America. In addition, he was a co-author of two conference presentations, one with Rachel Awe ’14, and the other with Amber Barton ’14 and Muhammad Sarwar ’16. Dr. Schwimmer also served as mentor to Sarah Mozes ’14 and to Brandon Powell ’14 for their independent research projects.

Dr. Gabi Smalley continued to serve on the Rider International Education Council and was the Rider Liaison to the New Jersey Sea Grant Consortium, as well as the GEMS Study Abroad Advisor. In addition, she mentored Kelly Krolik ’14 and Taylor Krolik ’14 on their senior independent research projects.

Dr. Hongbing Sun completed his Research Leave during the fall semester and made great progress on his continuing studies into the fate of sodium and other ions in watersheds impacted by the repeated application of winter deicing salt. In addition, he was the lead author of two published manuscripts, one with John Alexander ’14, Brita Gove ’13, Eric Pezzi ’13, and Nicole Chakowski ’12, as well as three conference presentations, all with student co-authors, including John Alexander ’14, Amber Barton ’14, Nicole Chakowski ’12, Brita Gove ’13, Eric Pezzi ’13, and Muhammad Sarwar ’16.

GEMS students and recent graduates also participated in a variety of research and graduate programs at other institutions and organizations. Allison Ingram ’13 was accepted with funding into the master’s program at the University of Tennessee to continue her dendrochronology studies. During the fall 2013, she also continued as a Research Intern at Princeton University. Jason Dallas ’14 was accepted with funding into three different graduate programs to study wildlife ecology, although he has decided to attend Shippensburg University. He also was a suburban ecology intern at the Mianus River Gorge this past summer. Over the summer, Katelyn Hoffman ’16 interned at the Philadelphia Zoo, Jessica Munyan ’16 participated in an NSF-REU climate program at Penn State, Rachel Nangle ’16 interned at the Bergen County Zoo, and Craig Sinkler ’15 worked in the Princeton University lab of Dr. Kelly Caylor on ecohydrology research in the Pine Barrens; he will be presenting the results of his research at this fall’s AGU meeting in San Francisco. Juliana Ciccarelli ’14 presented the results of her Penn State NSF-REU at the Annual Student Conference of the American Meteorological Society of America, and Andrew Kelly ’15 presented the results of his NSF-REU research at the University of South Carolina Research Symposium. Finally, Muhammad Sarwar ’16 attended the SUNY Cortland geology field camp in the Catskill Mountains.

A large number of GEMS students received various honors, awards and recognition for their many academic achievements. Eric Cottrell ’14 was a recipient of the very prestigious Rider University President’s Award. Jason Dallas ’14 graduated with honors in Environmental Sciences, Kelly Krolik ’14 and Taylor Krolik ’14 graduated with honors in both Environmental Sciences and Marine Sciences, Lindsey Monk ’13 graduated with honors in Integrated Sciences and Math, and Sarah Mozes ’14 graduated with honors in Geosciences. Amanda DeRemer ’16, Rachel Nangle ’16, Fatima
Sulaman ’16, and Katelyn White ’14 were inducted into the Tri-Beta Honor Society and John Alexander ’14 was inducted into Sigma Xi. Deanna Boccuzzo ’14, Evelyn Casperson ’14, Kelly Collova ’14, Eric Cottrell ’14, Tiffany Gobac ’14, and Jennifer Meier ’14 were inducted into Kappa Delta Pi. Rachel Awe ’14 was inducted into Pi Delta Phi, and Jillian Spratt ’14 was inducted into Omicron Delta Kappa and Phi Sigma Tau. Hillary Boff ’14 received a Certificate of Excellence in Science Education and the John Phillip Sousa Band Award (who knew!), Corey Fratarcangeli ’14 received the Amy Silvers Memorial Award, and Jennifer Meier ’14 received a Certificate of Excellence in Middle School Education. In addition, Tiffany Gobac ’14 and Jennifer Meier ’14 received Center for the Development of Leadership Skills Leadership Certificates. Finally, given all their many honors and awards, Eric Cottrell ’14 and Jennifer Meier ’14 were selected for inclusion in the 2014 edition of Who’s Who Among Students in American Colleges and Universities.

And, as if all these awards and honors were not enough, 60 GEMS students (the most ever!) earned Dean’s List recognition for the fall 2013 and the spring 2014 semesters. Congratulations to all GEMS students for all their hard work and their accomplishments! We could not be more proud.

GEMS STUDENT RESEARCH 2013-2014

Perhaps more so than in any previous year, a major strength of GEMS is the ability for our students, even freshmen, to become involved in independent research, usually under the mentorship and guidance of one of the GEMS faculty. The following is a summary of all the student research and senior thesis topics for the 2013-2014 academic year, including three student co-authored manuscripts published in peer-reviewed scientific journals and seven papers presented at professional meetings. It really is an incredibly impressive list.

John Alexander ’14 and Brita Gove ’13: Mobilization of heavy metals in response to deicing salt application (student co-authors of a paper presented at the 2014 Annual Meeting of the Northeast Section of the Geological Society of America).

Rachel Awe ’14: Garnet provenance study of beach sands from Sandy Hook and Cape May, New Jersey (student co-author of a paper presented at the 2014 Annual Meeting of the Northeast Section of the Geological Society of America).

Amber Barton ’14: Geochemical environment of arsenic in stream water and soil solutions of the Crosswicks Creek Watershed, New Jersey.

Amber Barton ’14 and Muhammad Sarwar ’16: Geochemical environment of arsenic in stream and soil solution (student co-authors of a paper presented at the 2014 Annual Meeting of the Northeast Section of the Geological Society of America).


Jason Dallas ’14: Freshwater turtle population in an urban lake and the benefits of installing basking logs (student co-author of a paper presented at the Watershed Congress Along the Schuylkill, Delaware Riverkeeper Network Conference).

Dr. Druckenbrod and Nicole Chakowski ’12: Dendrochronological dating of two tulip poplars on the west lawn of Monticello. This manuscript was published in Tree-Ring Research.

Drew Kelly ’15: Measuring particulate phosphorus: A comparison of two methods (student co-author of a paper presented at the
University of South Carolina Research Symposium)

**Kelly Krolik ’14:** *The response of tropical fish species to boat noise disturbances.*

**Taylor Krolik ’14:** *The effect of marsh type on biological and physical factors within the marsh environment.*

**Kate Krsnak ’13, Dr. Gallagher,** and others: *Indicated fossil turnover linked to changes in depositional environment between the Maastrichtian and Campanian boundary in the western United States.* This manuscript was published in *The Mosasaur.*

**Lindsey Monk ’13:** *An investigation of science, technology, engineering, and mathematics (STEM) education.*

**Sarah Mozes ’14:** *Paleoenvironmental investigation of the Cambrian-Ordovician Allentown Dolomite, Hamburg, NJ.*

**Chanton Phan ’17:** *Introduction to marine ecology research* (Freshman Science Honors Program project).

**Brandon Powell ’14:** *Agnostic response in male Betta fish.*

**Dr. Sun, John Alexander ’14, Brita Gove ’13, Eric Pezzi ’13, Nicole Chakowski ’12,** and **Dr. Husch:** *Mineralogical and anthropogenic controls of stream water chemistry in salted watersheds.* This research resulted in a paper being presented at the 2013 Annual Meeting of the American Geophysical Union and a manuscript published in the Journal of Applied Geochemistry.

**Emily Treacy ’17:** *Introduction to tree-ring research* (Freshman Science Honors Program project).

**GEMS SUPPORT REACHES A NEW HIGH FOR THE SECOND STRAIGHT YEAR!**

Over $8,600 was donated to GEMS this past year by alumni, friends, and corporate matching gifts, the largest total amount in any 12-month period in the department’s history, and exceeding the previous year’s record total by more than $1,500! Everyone at GEMS thanks all who donated for their fantastic generosity and support. Without their assistance, we would not be able to purchase the necessary (and typically expensive) equipment that allows us to provide a modern, state-of-the-art education to our students. Our hope is to have another excellent result this coming year and then to use some of the accumulated funds to purchase a much needed, big-ticket item.

As many of you know, the “Friends of GEMS” alumni group is committed to increasing the number of active members and donations to the department. If you would like to join “Friends of GEMS,” and help make the GEMS experience even better for our current and future students, please contact **Randy Kertes ’84**, GEMS Adjunct Instructor and Director of Land Use and Environmental Services, Sadat Associates (Trenton, NJ), at 609-826-9600, ext. 149, or at rkertes@sadat.com. You’ll be glad you did!

**GEMS ALUMNI UPDATE**

As usual, a number of GEMS alumni either stopped by the department for a visit or contacted us with their latest news. If you haven’t done so recently, please bring us up to date with what is going on in your life. You can find additional alumni news, including specific contact information, on the GEMS alumni web page, located at http://bit.ly/NTJeO2. As always, we look forward to hearing from you.

**Doug Sturgis ’83** has moved yet again! His work for Exxon Mobil Production Company
now has taken him to Yuzhno, Sakhalin Island, Russia. Prior to this assignment, he had moved back to Houston after being a Supervisor of a North Africa and Europe Field Studies and 4D Seismic Interpretation Team, located in London, from 2008 until 2012. Doug has nearly 30 years with ExxonMobil and spent three years (2001-2004) for them in Malaysia, where he also was able to travel to China, Thailand, Nepal, New Zealand, and Australia. Doug says the best part of being in Malaysia was hiking in the Himalayas and diving and snorkeling on the island of Sipadan and on the Great Barrier Reef with his family. Doug and his wife, Melissa, have two adult children, Nathan and Jennifer.

Randy S. Kertes, PG, CPG ('84 and GEMS Adjunct) participated in the 2014 New Jersey Olympic Triathlon (0.92 mile swim, 25.5 mile bike, and 6.2 mile run) in Mercer County Park, West Windsor, NJ in July. After training for several months, Randy finished with a time of 3 hours, 11 minutes, and 55 seconds. He finished 852 out of about 1200 participants. Not bad for an old geologist. Randy feels good about “being one of the leaders in the lower third.”

Erik Bender '85 received his doctorate in 1994 from the University of Southern California where he completed a thesis entitled, "Petrology of Early Proterozoic plutons from southeastern California, western Arizona and southern Nevada: Implications for crustal growth of the southwestern United States.” Dr. Bender is now Professor of Geology at Orange Coast College in Costa Mesa, California. In addition to teaching many different geology courses at OCC full time since 1994, Erik also has taught courses at Chaffey College, Chapman University, California State University at Fullerton, California State University at Long Beach, Mount San Antonio College, and Pasadena City College. Erik and his wife, Linda, are the proud parents of three very active daughters, Victoria, Jacquelyn, and Alexa.

Kerry Szemle Drennan ’96 and her husband, Bill recently moved from Bayonne to a new house in Berkeley Heights with their two children, Paige and Graham (see photo). She says the suburbs are great, but that you can't get a decent pizza, at least not like one from Bayonne! Kerry is working part time as an Assistant Project Manager with Sovereign Consulting Inc. in their Parsippany, NJ office.

Will Bogetti '03 is a Geographic Information System Manager for ALK Technologies, located in Princeton NJ. At ALK, he manages a team of 20 people who create navigation software that keeps track of roads and highways across North America. The primary user of the software is the trucking industry, which is not only trying to find the best routes, but also reduce fuel consumption at the same time. Prior to his position at ALK, Will worked for the New Jersey Department of Environmental Protection where he had interned while at Rider. Find out more by reading about Will in the Spring 2014 issue of the Rider Alumni Magazine.

Ken Kacperowski ’06 received his M.S. in Geosciences at Montclair State University where he worked on deciphering the geologic history and geomagnetics recorded in a deep marine sediment core from eastern Antarctica. Ken also got married in September 2010 and bought a house in Hamilton, NJ. Congratulations! Ken is working for AMEC Environmental and Infrastructure in their Hamilton, NJ office along with two other
GEMS alumni, John Alexander '14 and Frank Petrino '09. Ken can be contacted at kkacperowski@gmail.com.

Harmony Liff '06 completed her Master's in the Marine Sciences at the University of South Carolina where she studied climate change through the use of satellite and remotely-sensed data. Congratulations! Harmony now lives in Honolulu, Hawaii (well, somebody has to!) and is a contracted longline fisheries observer for Techsea International, Inc. as part of the Pacific Islands Regional Observer Program run by the National Marine Fisheries Service and NOAA. Typically, she is out at sea for a month at a time (she now has more than 100 days at sea), observing commercial tuna and swordfish fishing practices while taking notes on protected species interaction, as well as any MARPOL (International Convention for the Prevention of Pollution From Ships) incidents or violations. Oh yes, in her spare time Harmony still dances.

Charlie Zielinski '10 is now working for the New Jersey Department of Environmental Protection (NJDEP) in Trenton. He and his wife, Emma (Rider Biology ’10) also just bought a house in Lawrence Township where Emma is teaching biology at the high school. Prior to his position with the NJDEP, Charlie was a staff geologist with Kleinfelder Inc. in their Hamilton, NJ office. Most of his responsibilities there centered on groundwater sampling, although he also was involved with drilling, soil boring, and excavation operations.

Denise Breen ’11 is an Associate Project Scientist with Weston Solutions, Inc. in their Edison, NJ office where she works under Weston's START3 Contract for the U.S. EPA's Region 2 Sites Assessment Team. Denise travels to potential Superfund sites from Niagara Falls to Puerto Rico and basically plays "environmental detective," looking at possible sources and pathways of contamination for all sorts of compounds, including lead, PCE/TCE, radioactive waste, etc. She also has decided to go back to earn her Master's Degree through an online program.

Jessica Horton ’12 is working full time at Rutgers University's Haskins Shellfish Research Laboratory in Port Norris, NJ. She's been working recently on shellfish annual stock assessments and on the U.S. Army Corps of Engineers project for deepening the shipping channel of Delaware Bay and studying the effects the project is having on the resident oyster population. Jessica also is in an online graduate program at the University of Florida with plans to graduate in 2015 with her Master's Degree in Fisheries and Aquatic Science.

Allison Ingram ’13 has been accepted into the graduate program at the University of Tennessee, starting this fall, where she'll be working with Dr. Henri Grissino-Mayer, who leads one of the largest tree-ring research labs on the east coast focusing on forest ecology in the southeast U.S. Allison spent the summer and fall of 2013 as a Research Intern for Dr. Kelly Caylor, Department of Civil Engineering, in his Ecohydrology Lab at Princeton University. Allison worked on the Drought Open-Source Ecology (DOSE) project, analyzing the impacts of the 2012 drought on forest growth and mortality at sites across North America by measuring the ring-widths in tree.

John Alexander '14 recently started working for AMEC Environment and Infrastructure in their Hamilton, NJ office. John completed the 40-hour OSHA HAZWOPER course and has begun working on soil and groundwater samples to evaluate metal contamination. John can be contacted at work at john.alexander@amec.com or at 609-689-2834.

Taylor Krolik '14 has started the Master’s Degree in Teaching & Teaching Certification graduate program at Montclair State University. There she will focus on Earth Science education. Congrats and good luck with the program!