DR. DANIEL DRUCKENBROD: THE NEW GEMS FACULTY MEMBER WHO ACTUALLY CAN SEE THE FOREST THROUGH THE TREES

Probably the single most significant event of the 2008-2009 academic year for GEMS was the highly successful search and hire of our newest full-time faculty member, Dr. Daniel L. Druckenbrod, as an Assistant Professor of Environmental Science. Dan, who will replace Dr. Richard Alexander and Dr. William Gallagher (read more about Bill below) on a permanent basis, was the unanimous top choice from the four excellent finalists (out of over 80 applicants from across the nation and around the world) who interviewed and presented their research on campus to GEMS faculty and students.

Dan’s research and teaching experience are very impressive, particularly for someone still in the relatively early stages of their academic and scientific career. He received his Ph.D. in Environmental Sciences from the University of Virginia in 2003, was an Instructor of Biology at Sweet Briar College in 2001, a Postdoctoral Research Associate at the Environmental Sciences Division of the Oak Ridge National Laboratory from 2003 to 2005, and an Assistant Professor of Environmental Sciences at Longwood University in Farmville, Virginia from 2005 to 2009.

The recipient of many honors, awards, and grants for his scholarly and research efforts and already the author of dozens of scientific publications, papers, and presentations, Dan uses tree rings, computer models, historical documents, and field surveys to study how forests and their environments change over long time scales. His most recent projects investigate forest dynamics since the colonial era at significant historical sites, including George Washington’s Mount Vernon Plantation and Thomas Jefferson’s Monticello Plantation. In addition, Dan strongly encourages undergraduate students to participate in his research or to develop their own research projects on environmental science topics. Previous student projects have led to presentations at statewide and national scientific conferences.

With Dan’s arrival, Dr. William Gallagher has ably completed his responsibilities as a GEMS Visiting Assistant Professor. In every way, Bill has been an outstanding addition to our full-time faculty and has enhanced our programmatic offerings across the board. Fortunately for Rider and GEMS, Bill will maintain his affiliation with the department as a Rider University Science and Technology Advanced Research Institute (STARI) Fellow. He also will continue to serve
GEMS as an Adjunct Associate Professor, primarily teaching our Mesozoic Ruling Reptiles and Marine Life Through Time courses.

We could not be happier, or more fortunate, to welcome Dan to GEMS, while also having Bill remain as an active, contributing member of the department.

RANDY KERTES '84 INDUCTED INTO THE RIDER UNIVERSITY SCIENCE STAIRWAY OF FAME

Randy S. Kertes ’84, a Rider geosciences graduate and GEMS adjunct instructor, was inducted into the Rider University Science Stairway of Fame on June 13, 2009. The Stairway of Fame, located in the research wing of the Science and Technology Center, honors individuals who were exemplary students and who have achieved significant professional success. The honorees are also loyal and generous supporters of Rider University’s science programs.

While at Rider, Randy worked very closely with Dr. Richard Alexander and Dr. Joseph Nadeau, who instilled in Randy his long-standing commitment to developing sustainable projects for the benefit of individuals and the environment. After graduating Rider, Randy received his M.S. degree in geology from the University of Cincinnati in 1995, where he worked on an in-depth analysis of sedimentary textures.

With more than 20 years of professional experience in the environmental consulting and land development fields, Randy is now a Senior Project Manager with Sadat Associates, an environmental consulting firm located in Trenton, NJ. Over the years, he has developed a broad background and expertise in the environmental sciences, particularly soil, lake, and groundwater remediation, watershed restoration, environmental assessments, and air quality issues. In addition, Randy has provided expert testimony relating to environmental remediation and the minimization of adverse impacts from residential and commercial development.

A valued member of the Rider University Science Advisory Board and a highly respected GEMS adjunct instructor, Randy also was the creator of, and driving force behind, the very successful $100,000 grant proposal to the New Jersey Department of Environmental Protection that funded the multidisciplinary and innovative Centennial Watershed Lake Project on campus. As a result, Rider University and the Rider University Alumni Association had previously honored Randy for his many contributions to Rider and GEMS. Our congratulations to Randy for this new and richly deserved award and recognition. We could not be prouder!

FIELD MARINE COURSE: FLORIDA KEYS

This past May six marine science majors, Dan Brown, Susan Gayley, Amber Johnson, Sara Pethick, Sam Robbins and Maggie Shaw, participated in the MAR-227: Introduction to Field Marine Science: Subtropical Environments course in the Florida Keys led by Dr. Paul Jivoff. The two-week-long course was based at the Newfound Harbor Marine Institute, also known as Seacamp, located on Big Pine Key.
While there, students conducted a number of projects in the field, including examining factors influencing seagrass bed structure; sponge morphology and the presence of sponge commensals; the abundance, distribution, and morphology of soft corals; the abundance, distribution, and diversity of organisms in two mangrove root communities; and the movement, decoration, and habitat use of two species of sea urchins. Students also snorkeled in the fore-reef and back-reef at Looe Key National Marine Sanctuary, as well as with several sharks in the “shark-pit” at Seacamp.

During the last three days of the course, students conducted a number of individual projects, including factors influencing the righting ability of brittlestars, the habitat preferences of hermit crabs, movement and foraging in sea urchins, the decoration behavior of both sea urchins and decorator crabs, and hermit crab shell choice. We also welcomed recent Rider Marine Sciences graduate, Elise Proctor ‘09, to Seacamp where she was starting her new job as a marine science instructor.

**GEMS NEWS**

The relocation and renovation of the Richard R. Alexander Marine Aquarium Lab and the GEMS Sample Preparation Room are essentially complete. As you may remember, the Aquarium Lab originally was slated for relocation and renovation during the summer of 2008, but was postponed until additional funding could be obtained. Under the leadership of Dr. Jonathan Yavelow, Assistant Dean for the Sciences, additional funds were raised (our thanks to all who donated) and this past spring an architect and engineer were hired to do the design work. The outcome is a brand new and very accessible Aquarium Lab on the first floor of the new wing of the Science and Technology Center, in the space formally occupied by the Rock Preparation Lab, and the relocation of a greatly expanded Sample Preparation Lab (we deal with more than just rocks!) into the vacated space on the third floor. This result is real win-win for everyone concerned, but particularly for Dr. Paul Jivoff (Biology) and Dr. Gabriela Smalley, who, along with their students, will be the primary users of the new Aquarium Lab.

Dr. Hongbing Sun and Dr. Jonathan Husch are co-principle investigators on a grant awarded funding by the National Science Foundation for the amount of $155,291. The grant, with Dr. Feng Chen (Chemistry) as Principle Investigator,
funded the purchase of a Rigaku Ultima IV X-ray diffraction system. This new integrated and state-of-the-art unit, along with associated equipment and software, will be used in a wide variety of teaching and research projects. Carl Natter '09 has already extensively used the equipment to help him characterize glauconite and other clays found at the Cretaceous/Tertiary boundary as part of his Senior Thesis, supervised by Dr. William Gallagher, on *Glaucnite deposition in the Cretaceous/Tertiary strata of the New Jersey Coastal Plain.*

The Integrated Sciences and Math (ISM) major continues its rapid growth, with approximately 40 declared majors spread over all four areas of concentration (Math, Life Sciences, Physical Sciences, and Earth Sciences). With the other GEMS majors also maintaining strong enrollments, the department now has approximately 100 total majors and minors, by far the largest number of students in GEMS history!

The department successfully completed a year-long process in revising and updating almost all of its major and minor program requirements, including those for the Life Sciences Concentration of the ISM major. In addition, the Oceanography minor has been discontinued and the Environmental Geology minor has been renamed the Earth and Environmental Sciences minor.

The department also is making steady progress in its ongoing Teaching and Learning Outcomes Assessment Program under the leadership of Dr. Reed Schwimmer and Dr. Gabriela Smalley. As many of you know, we completed an extensive on-line survey of our recent graduates (since 2001) that provided very valuable, and highly positive, data on alumni opinions of their specific GEMS program and curriculum, as well as their interactions with GEMS faculty. To succinctly summarize the results: “You like us, you really like us!” We plan to make the results available on our web site soon.

**STUDENT RESEARCH AND AWARDS**

As usual, many GEMS students and faculty have been very active over the past year in presenting the results of their collaborative research. Matthew Nelson '09 co-authored a manuscript with Dr. Sun, Dr. Chen, and Dr. Husch on *Mineral structural water loss and estimation of soil organic matter content by LOI,* which was accepted for publication in the Canadian Journal of Soil Science.

Maria Huffine, Ashleigh Layton '08, Kelly Luccarino '07, and Leeann Sinpatanasakul, who were co-authors with Dr. Sun on a paper entitled, *Retention of Sodium in the Centennial Lake Watershed,* won the award for Best Undergraduate Student Poster Presentation at the New Jersey Water Environmental Association 2009 Annual Meeting. Congratulations to all!

Carl Natter '09 co-authored a paper with Dr. Sun on *Erosion and weathering processes in the Delaware River Basin,* which was presented at the 25th Annual Meeting of the Geological Association of New Jersey (GANJ) and published in the meeting’s proceedings volume.

In addition to the published research, at least eight other research projects were undertaken and completed by GEMS students. These including projects, supervised by Dr. Smalley, by Elissa Connolly-Randazzo, Elizabeth Evans, and Amrita Paul that focused on fish ecological data they collected while in Roatan, Honduras. Results for many of these additional student research projects were presented at Science and Technology Center Student Research Open Houses.

A large number of GEMS students received awards for their many academic accomplishments. Forty-one GEMS students earned Dean’s List recognition.
for the fall semester and 42 earned that recognition for the spring semester. Jenna Hamer, Sara Pethick, and Robert Weber were inducted into the Tri-Beta Honor Society and Elise Proctor ’09 and Susan Zabrocky ’09 were inducted in the Sigma Xi Honor Society. Susan also was inducted (along with Dr. Smalley) into the Royal Order of Newfoundland Screechers and made honorary Newfoundlanders. Reportedly, the initiation ceremony was something to behold.

In addition, Christina Athmejvar ’09 graduated with honors in Liberal Studies: Marine Ecological Emphasis, Michael Ciaramella ’09 (see below) and Susan Zabrocky ’09 graduated with honors in Marine Sciences, and Carl Natter ’09 graduated with honors in Geosciences. Carl also received full tuition remission and a stipend to attend Montclair University where he has enrolled in their Master’s Degree Program in Geology. Congratulations to all our students for all their hard work!

Finally, Michael Ciaramella ’09 was crowned as the 2008-2009 Rider University Cranberry King. He also was honored as a recipient of the 2009 Rider University President’s Award, the most prestigious honor bestowed on a student by the University. Well done Mike and “all hail King Michael!”

THE GEMSMMA BLACKBOARD GROUP: AN ADDITIONAL WAY FOR GEMS ALUMNI TO STAY IN TOUCH

As many of our most recent alumni are aware, GEMS has maintained the Geological, Environmental, and Marine Sciences Majors, Minors, and Alumni (GEMSMMA) Blackboard Group for the past few years. For those of you unfamiliar with it, Blackboard is a web-based course/group management software package that allows all GEMS faculty and students to communicate with each other quickly and easily, and for information about GEMS related scholarships, internships, job openings, talks, and many other things to be centrally posted and disseminated.

What’s new is that there now is a way for GEMS alumni to access the GEMSMMA Blackboard group site as guests and to view announcements and other information posted there. This may be of great interest and benefit to our alumni who are in the job market or looking for graduate and/or internship opportunities.

To access the GEMSMMA Blackboard Group as a guest, please do the following:

1. In your web browser, go to blackboard.rider.edu;
2. Click on the User Login button on the left;
3. Again on the left side, click on the Preview button;
4. At the Welcome page, click on the Organizations tab at the top;
5. In the Organization Catalog box, click on ACD: Academic Departments;
6. The Organization ID alphabetical listing should include GEMSMMA; click on that to go to the GEMSMMA Blackboard Group Announcements Page (finally!)

Once there, you should be able to access all of the GEMSMMA pages listed on the upper left, except Communication. Unfortunately, unless you have a Rider University e-mail account, you will not be able to use the GEMSMMA Blackboard Group site to send or receive e-mails. This means you will not receive group e-mails sent to all enrolled GEMSMMA Group members. However, if you still have an active Rider and GEMSMMA enrolled e-mail account you can set it to bounce messages to another, preferred e-mail account (Gmail, Hotmail, etc.).

Despite this limitation, we still think GEMS alumni will find the GEMSMMA Blackboard Group site a useful place to
visit from time to time. If nothing else, you’ll find out what’s going on at GEMS in almost real time. Stop by soon.

ALUMNI UPDATE

Once again, many GEMS alumni either stopped by the department for a visit or contacted us in the 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 the GEMS alumni web page, located at www.rider.edu/172_1911.htm. As always we look forward to hearing from you.

Randy Kertes ’84 was inducted into the Rider University Stairway of Fame on June 13, 2009 (see story above). Our congratulations to Randy for this new and richly deserved honor and recognition.

Randy still serves as an adjunct instructor and outside research advisor for our department with an expertise in environmental and watershed issues, as well as serving as a valued member of the Rider University Science Advisory Board. We’re very proud and happy to have him with us in all these capacities!

Jennifer Durkin ’00 is still working at the National Aquarium in Baltimore as the organization’s School Programs Coordinator and Chair of the Internal Conservation Committee. Recently, Jen was interviewed about conservation projects by WBAL, one of the local Baltimore television stations. The story and her interview can be viewed at www.wbaltv.com/video/16647710/index.html.

Russell Burke ’02 is completing his doctorate in Marine Conservation Biology in the Department of Fisheries at the College of William and Mary’s School of Marine Science, Virginia Institute of Marine Science. His research there has centered on the predator-prey interactions between blue crabs and native oysters in the York River Estuary of Chesapeake Bay. Recently, Russ was a co-author on a research paper published on-line in Science Magazine dealing with improved methods for restoring native oyster populations to the bay. Because of its potential large economic and ecological ramifications, the publication was the subject of numerous news stories from around the country, including one in the New York Times Science Section on August 4, 2009!

Bethany Eden ’05 recently started teaching marine and environmental science to academically advanced high school students at the Chesapeake Bay Governor’s School (CBGS). CBGS is a magnet high school that focuses on marine and environmental science; Bethany says she couldn’t be happier!

Ken Kacperowski ’06 continues to work toward his M.S. in geoscience degree at Montclair State University where he recently received a research assistantship position deciphering the geologic history recorded in deep-marine sediment cores from Antarctica. Sounds like a cool job!

Kevin Becker ’06 is a Project Geologist, doing geotechnical inspections, for Earth Engineering Inc. in West Berlin, NJ. Kevin says he really enjoys the work and also is planning on going to graduate school for his Masters of Geology degree.

Nicole Glenn ’07 is teaching high school honors science classes in Trenton and working on her Masters in Special Education at Rider University. This past August she got married to Matt Marino. Congratulations, Nicole!

Jill Loveland ’07 is a biology teacher at Bethpage High School in Bethpage, Long Island and is pursuing her Masters degree in Secondary Education/Biology at CUNY Queens College in Flushing, Queens. As if that weren’t enough, Jill also is coaching track at JFK Middle School in Bethpage.
Daniel Carlson ‘09 began his post-Rider career this summer as an assistant project scientist at Weston Solutions Inc. His main job responsibilities include conducting site assessments and environmental sampling (sediment, soil, groundwater, surface water) to determine if, and to what degree, an area represents a potential environmental hazard and what possible remediation steps might be taken.

Susan Zabrocky ‘09 is working as an Educator at the Maritime Aquarium in Norwalk, CT. She is teaching a variety of educational programs for students in grades from pre-K–12, both at the aquarium and on the aquarium’s research vessel, the R.V. Oceanic. Susan says that she is really enjoying her new job, and even gets to teach a unit on plankton!

Michael Ciaramella ‘09 recently moved to Prince Edward Island, Canada to pursue a Master’s of Veterinary Science in Pathology and Microbiology at the Atlantic Veterinary College’s Lobster Science Center, part of the University of Prince Edward Island. As part of the program he will be studying lobster nutrition. Good luck, Mike, eh?

Elise Proctor ‘09 couldn’t escape the draw of marine science field work as she spent the summer as a camp counselor at Newfound Harbor Marine Institute’s Seacamp, in Big Pine Key, FL.