RU College of Science and Technology
Radford University

August 25, 2011

From the Dean's Desk

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Busy Summer in CSAT

The College of Science and Technology enjoyed a busy summer with multiple events and workshops on campus.

In May and July, the RU Forensic Science Institute hosted the Nation Institute of Justice Mid-Atlantic/Mid–Appalachian Innovations in Forensic Science workshop for law enforcement officials across Virginia.

Topics included digital forensics criminalistics, forensic microscopy, forensic entomology, forensic archaeology, forensic anthropology, forensic chemistry, innovations in GIS and crime mapping, and advances in stable isotope analysis and forensics.

This workshop is made possible by a two-year grant from the National Institute of Justice to provide a series of workshops focused on forensic science training.

Also in May, More than 40 community college information technology instructors attended this year's Mid-Atlantic Working Connections Summer Institute hosted by the RU College of Science and Technology's information technology department.

The conference offered professional development and educational opportunities for instructors from across Virginia and Maryland. Class topics included business intelligence, using social media tools and media production to engage "generation next," creating games with GameMaker, Unity 3D, HTML/CSS, PHP and MySQL, in addition to a primer on mobile development.

In June, the CSAT hosted a weeklong Camp Invention for 66 rising first through rising sixth graders in Reed and Curie Halls. This was the third year the CSAT hosted the camp. Enrollment has increased steadily throughout the years from 42 campers in 2009 to 66 in 2011.

In July, 62 rising sophomore through rising senior high school girls attended the Summer Bridge Program 2011 and learned about space science, forensics and environmental science. Thanks to corporate donors, all 62 girls attended with full scholarships.

(see pg. 4 for photos)

Alumni Advisory Council Meeting Sept. 30

The College of Science and Technology will host an alumni advisory council meeting on Friday, Sept. 30 from noon to 3 p.m. with an alumni panel presentation scheduled for 3 p.m. in the Bonnie Auditorium. Faculty and students are strongly encouraged to attend.

Alumni attending include geology graduate and President of World Tech International Ernie Paylor, biology graduate and cancer researcher Raquel Collins-Underwood, information technology graduate and senior GIS architect Seth Peery, geography graduate and President of InteractiveGIS David Bradshaw, Chief Technology Officer for the Mayor of Washington D.C. and information technology graduate Rob Mancini, among others.

Inside this issue:

Upcoming Events:

- Alumni Panel Presentation, Sept. 30 at 3 p.m. in the Bonnie Auditorium

CSAT Launches New College Website

The College of Science and Technology launched its new website which incorporates the Cq5 content management system.

Information technology faculty Jack Davis and his students worked diligently all summer to complete the website for the college and the information technology department.

They will be creating a template for each department and program to use that will conform with the new design, which is within the university's website design guidelines.

Davis and three information technology students will be assisting department representatives in setting up and populating their website. After set-up is complete, the departments and programs will be responsible for updating and maintaining the sites.

The college website team will be available for questions and technical assistance. For more information, contact Ann Brown at abrown238@radford.edu.

Research Leads to Ancient Burial

Physics professor Rhett Herman and physics major Jared Palmer spent two weeks this summer on a remote beach searching for an ancient burial ground under meters of the pea-size gravel. One might picture the pair taking a dip in the ocean or enjoying a frozen treat while wearing their flowered shirts and flip flops. Not this pair of scientists.

Rather than the tropics, Palmer and Herman were in Barrow, Alaska, where they searched for lost burials of the Inupiat, the native people of the north slope of Alaska who once lived on Point Barrow, a barrier island. The ground of Point Barrow is eroding, and a team of scientists is searching for the burials before they are lost at sea.

Herman went on to describe 40 degree conditions with a 20 mph wind – "soul crushingly cold," he wrote home. "Our faces are seriously wind burned." The pain was worth it, however. Data the researchers collected led to discovery of an ancient human so well preserved that details of the burial clothing could be studied.

In partnership with the Nuvuk Archaeology Project and its top scientist, Anne Jensen, Palmer and Herman used two ground-penetrating radar (GPR) units to survey the area the team believed to be the site of a cemetery from a lost settlement, hoping to find human remains or other pertinent artifacts. "It turned out that we were at the purported southern extent of this burial area," Herman said. "They expected to find nothing, but we had to be sure."

Using their geophysical technology, the Radford team found an ancient beach line on which ancient people had built structures. "Now we are hoping to get the National Science Foundation to get the project additional funds to hire a backhoe to dig down to the level where the beach line is so that they can do the recoveries quickly," Herman said.

Large excavation equipment is essential because the beach's pea-size gravel fills any hole more than about 20 inches deep. "Digging down even 1 meter requires a crater of nearly 5 meters across. Digging down 2 meters requires heavy machinery," Herman said. "The project team thinks our GPR data will tip the scales at the National Science Foundation in their favor in their race against the rising sea levels."

On Palmer and Herman's last day of data collecting, they found a large anomaly at an unusual depth. In previously excavated burials, remains would be found at about 2 feet because of the frozen ground where the burials were made. "Jared and I told Dr. Jensen that these extraordinarily strong anomalies were down about 30 centimeters deeper," Herman said. "It turns out that it's the deepest burial she's seen in her 15 years working on this dig."

Jensen posted on her blog (http://networkedblogs.com/kA2Gk): "The very deep burial turned out to be a person wearing a fur parka and wrapped in hide! You can even see traces of the stitching. We aren't sure how well preserved the person is (we found a few finger bones and a nail inside the cuff). We decided to take it out en bloc and take it back to the lab to excavate in controlled conditions so we can document the garment better, since it is very fragile. We had some plywood brought out and managed to slide it through the gravel under the entire burial and lift the whole thing. This required the digging of a very large hole, which we'll now need to backfill."

Before 1997, when the first human remains were found at Nuvuk, most anthropologists thought nothing of archaeological interest was left at Point Barrow. In the years since, it has become clear that the Nuvuk site was home to Thule people, ancestors of today's Inuits, since the 10th century and before that to the Ipiutak people in the fourth century, according to the Nuvuk Archaeology Project website.

Herman hopes the latest data will fuel further geophysical research in the area. The pair will submit an abstract based on their research for the fall meeting of the American Geophysical Union in San Francisco in December. Their research poster will include all data collected during their time in Alaska.

Francl Received Grant and Published in *Wildlife Professional*

Biology assistant professor Karen Francl's article "Shedding Light on an Epidemic" was published in the summer issue of The Wildlife Society's national publication *The Wildlife Professional.* The article discusses her research of the White Nose Syndrome in brown bat populations.

Undergraduate biology students assisted Francl in this research which spanned several states in the eastern U.S. For more information about The Wildlife Society and to read Francl's article and view photos of RU students assisting in this research, visit http://joomla.wildlife.org/.

In June, Francl and her student Tessa Canniff received $11,999 from Environmental Solutions & Innovations, Inc. (ESI) to assist in bat surveys. Francl and Canniff spent about two weeks surveying sites where buildings and utilities will be constructied. Most clients of ESI are power companies in need of surveys along powerline right-of-ways.

CSAT Faculty Receive $138,000 Grant from SCHEV

Professor Emeritus of Physical Science Franklin Jones, physics professor Walt Jaronski and associate professor and mathematics initiative director Laura Jacobsen have received $138,243 for their program "Supporting Mathematics, Science and Literacy in Southside Virginia" from the State Council for Higher Education of Virginia (SCHEV).

The central purpose of the project is to improve elementary and middle school students' science and mathematics literacy and SOL achievement by improving teachers' instruction including teachers' understanding of how to teach literacy across the disciplines.

The program includes curriculum materials, strategies, and assessments that align with Virginia's science, mathematics, and English Standards of Learning.

Project coursework includes a four-credit hour graduate elementary and middle science course in Pittsylvania County and a three-credit hour graduate mathematics course in Danville City. The program is designed for 48 participants in Southside Virginia. The program's curriculum emphasizes leadership development for teachers and principals through mentoring and dissemination sessions.

According to SCHEV interim director Peter Blake in the award letter to RU President Penelope Kyle, "The review panel was impressed with the quality of the proposals submitted. You and your faculty are to be commended for the important work you are doing with the area public schools and the significant contribution you are making to increase student achievement."

Faculty Receive Grant to Create Tour of Civil War Battlefields

Anthropological sciences professor Cliff Boyd and Professor Emeritus of Geology Robert Whisonant received $66,903 for their project "Using Digital Technologies to Interpret Saltville, Virginia, Civil War Battles" from the National Park Service's American Battlefield Protection Program.

This joint project with the Saltville Foundation will incorporate digital technologies to create a museum-based interactive tour and web-based tour to educate the public about the Saltville Battlefields in Virginia.

"We are proud to support projects like this that safeguard and preserve American battlefields," said Jon Jarvis, Director of the National Park Service. "These places are symbols of individual sacrifice and national heritage that we must protect so that this and future generations can understand the struggles that define us as a nation."

This grant is one of 25 National Park Service grants totaling $1.2 million to preserve and protect significant battle sites from all wars fought on American soil.

The CSAT Summer in Photos

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Above: Summer Bridge students learn about space science and forensic science.

Left: Youngsters during Camp Invention learn about biomimicry and inventing.

Below: IT professor Joe Chase conducts opening ceremony for Mid-Atlantic Working Connections conference.