

FROM THE DEAN'S DESK – October 10, 2014

THE RADFORD UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY NEWSLETTER



"Worlds of Ancient Mexico," a lecture series by Dr. David S. Anderson sponsored by the Department of Anthropological Sciences, will debut at noon on October 22 in Whitt Hall room 204.

Photo courtesy of the Department of Anthropological Sciences

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ADVANCED, HIGH-TECH LAB TO DEBUT ON OCTOBER 11 IN DAVIS HALL

On October 11, 2014, the Applied Research in Technology and Information Science Laboratory, known as the ARTIS Lab, will debut in Davis Hall with a Grand Opening Ceremony. Made possible through the generous support of Nancy '73 and Dr. Pat Artis, this collaborative computer laboratory will help College of Science and Technology Department of Information Technology, students and faculty to find solutions that will help to move the digital world forward with better data management and security. "We are extremely grateful to Dr. Pat Artis and Ms. Nancy Artis for their gift that has transformed space in Davis Hall into the ARTIS Lab" states Orion Rogers, Dean of the College of Science and Technology. "We sincerely appreciate their consistent support of Radford University, their vision for a facility that will provide our students, faculty and corporate partners extraordinary resources to enhance learning and research and their generosity that made it a reality."

The laboratory provides space and support for collaborative learning through faculty and student original research, applications of technology across a wide variety of disciplines, and access to technologies not generally included in academic classes. Projects that are based in technology but support other disciplines such as applications to the natural sciences, decision sciences, business analytics and health care will be provided secure physical and virtual space where innovation and interdisciplinary learning are valued and nurtured.



The ARTIS Lab, fully furnished with the latest equipment and technology tools, will allow RU undergraduate students to experience research and activity in a practical, hands-on environment with original applications of technology to solve real problems which is typically only found at a few select Masters-level programs. Dean Rogers adds "The ARTIS Lab will complement the work already being done in the Department of Information Technology and provide an environment for intellectual creativity to flourish and for partnerships to develop. This unique facility will positively enhance the learning experiences of our students, resources for our faculty members and engagement opportunities with corporate experts."

In addition to new areas of research, the ARTIS Lab will also support the university community through the establishment of the Applied Research Center at Radford University which will allow corporate partners to work with faculty and students to develop skills and experience with real-world projects based on relevant business needs.

The ARTIS Lab will also provide a collaborative space for RU's award-winning Cyber Security Team and the Radford chapter of the Association of Computing Machinery (ACM) programming teams that compete in annual regional and national cyber security and programming competitions.

RADFORD UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY FEATURED AT INAUGURAL VIRGINIA SCIENCE FESTIVAL



Science and Technology from across the Commonwealth is the focus of the first Virginia Science Festival taking place through October 11th. The goal of the Virginia Science Festival is to fascinate families from all corners of the State and provide hands-on, interactive inspiration at a time when science-based careers offer the most opportunity for future employment, social and financial advancement.

Radford University CSAT faculty and students have been and continue to be featured in a variety of sessions throughout the week-long program on the RU campus, at Virginia Tech and in Roanoke's Elmwood Park.

RU Professor of Physics, Dr. Rhett Herman was featured in a session entitled "Meet the Scientist - Geophysical Properties of Arctic Sea Ice" on Saturday, October 4th at 2:00 in the Drillfield Room of The Inn at Virginia Tech. Dr. Herman shared his experiences from research trips to Barrow, Alaska.

"Radford University students and faculty have studied the properties of the Arctic sea ice near Barrow, Alaska, with the goal of quickly determining the thickness of the sea ice over large areas" said Dr. Herman. "While it is easy to measure the horizontal extent of the polar ice cap with satellite imagery, the depth of the surprisingly-thin ice is difficult to accurately gauge for a number of reasons."

He adds "In addition, a possible method for determining ice depth over large areas was presented. This research effort is actually a regular class offering in which a number of students—all undergraduates—have participated over the past 8 years, giving our students a unique educational opportunity early in their careers. The impact of this experience on our students and their careers will be discussed."

Through this presentation, Dr. Herman helped attendees learn about some physical characteristics of the arctic sea ice including its thickness and also explore some geophysical remote sensing methods for determining sea ice properties.



Dr. Rhett Herman with RU Students Jesse Dodson and Sarah House in Barrow, Alaska.



Also on Saturday, October 4 at the Moss Center for the Arts on the Virginia Tech Campus, The Department of Biology and the RU Forensic Science Center provided exhibits from 10am to 4pm. The biology display is titled “ROACHZILLA: Bugs and Beyond” and Dr. Donna Boyd, co-director of the RUFSCI, showcased the work conducted by the Institute.

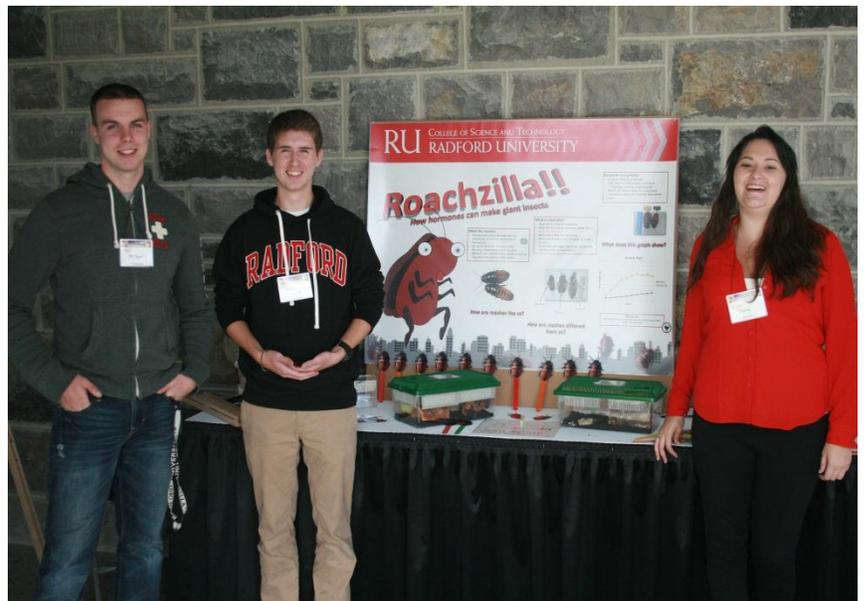
Dr. Donna Boyd sharing the work of the Radford University Forensic Science Institute during the Virginia Science Festival on October 4, 2014 in the Moss Center for the Performing Arts at Virginia Tech

On October 7 and October 9 at 7:30 pm, the RU Planetarium Shows were featured attractions in Reed/Curie Hall, Room B43.

On October 11 from 10am until 4pm, Dr. Francis Webster and a group of RU Students will feature work from the RU Department of Chemistry in downtown Roanoke. “With the help of students and recent alumni, we will explore the exciting topic of nanotechnology and the chemistry needed to make it work for the development of new materials, improved drug delivery, and environmental cleanup” states Dr. Webster. “Through the use of demonstrations and hands-on exhibits, we will introduce the public to the exciting realm of the nano-world.

The award winning Radford University P3 team will also be on hand to discuss the application their recent discovery of sugar based carbon nanoparticles for inexpensive water purification”

Joining Dr. Webster at the Radford University space in Roanoke will be the Department of Biology ROACHZILLA display and the RU Forensic Science Center.



RU Biology students with the “ROACHZILLA” display featuring information about the effects of royal jelly on Madagascar hissing cockroaches.

On October 11 the Radford University Campus will serve as a satellite location for the Virginia Science Festival:

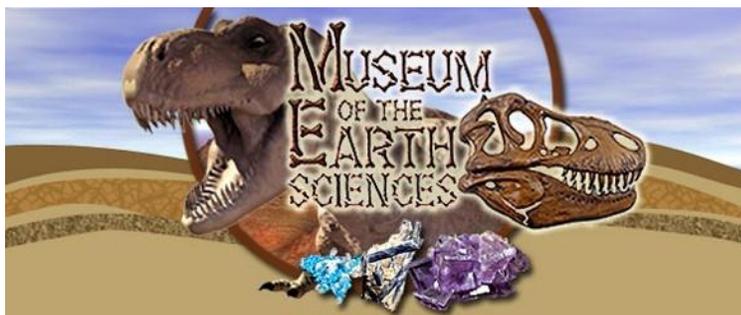
10 a.m. – 4 p.m. Greenhouse Tours

Reed Hall, First Floor Sponsored by the Biology Department

Sometimes you have to stop and smell the roses. Enjoy a tour of RU's Greenhouse, which maintains a diverse living collection that demonstrates ecological concepts and culturally important plants throughout the world.

10 a.m. – 4 p.m. Museum of the Earth Sciences

Curie Hall, Room 143 Sponsored by the Geology Department



Learn about the amazing planet on which we live! Through exhibits that encompass the earth science-related fields of geology, oceanography and physical anthropology, learn about the Earth, its past, present and future, and its interaction with those who inhabit it. Enter through Reed Hall main entrance.

10 a.m. – 2 p.m. Tours and Demos by the Department of Anthropological Studies and the RU Forensic Science Institute

Preston Hall Annex & Reed Hall 106 Sponsored by the Department of Anthropological Studies and the RU Forensic Science Institute

10 a.m. – 3 p.m. Table Top Trebuchet Demonstration

Reed Hall Lawn Sponsored by the Math Department

Come and observe a floating arm trebuchet launch small, soft projectile after using math and trigonometry to determine where the objects will land.

1 p.m. – 7 p.m. Planetarium Shows

Reed/Curie Hall, Room B43

Show times are 1 p.m., 3 p.m., 5 p.m. and 7 p.m.

Pick up free tickets to the show at the Hurlburt Student Center Information Desk. Space is limited.

2 p.m. – 5 p.m. Science Demonstration sponsored by the RU College of Science and Technology STEM Club

Alumni Village, Moffett Hall Lawn

Ongoing demos of a vortex cannon, air pressure strength, magnetic levitation and more.

For more information, please visit <http://virginiasciencefestival.org/>.

COLLEGE OF SCIENCE AND TECHNOLOGY TO HOST FORUM DURING FALL DIVERSITY AWARENESS AND CELEBRATION WEEK

As a part of the Fall 2014 Diversity Awareness and Celebration Week, RU CSAT will host a forum entitled “The Gender Gap: Where the Girls Aren’t” to discuss the challenge of engaging women in science and technology related fields.

This event will take place on Wednesday, October 15 at noon in the Bonnie Hurlburt Student Center Auditorium and will feature members of the College of Science and Technology faculty Dr. Jill Stewart, Dr. Donna Boyd, Dr. Sara O’Brien, Dr. Christine Hermann, Dr. Hwajung Lee, and Dr. Orion Rogers.



Faculty and students are encouraged to join in this program to help find ways to address the problem and to open STEM-related fields to a broader audience. Admission is free. For more information, please contact Brooke Chang, Director of Diversity and Equity at 831-5307.

MATHEMATICS PROFESSIONAL DEVELOPMENT CENTER PROJECT PRESENTED AT NATIONAL CONFERENCE



Dr. Manziate and Dr. Jacobsen

Dr. Agita Manziate and Dr. Laura Jacobsen presenting their research during the Math and Science Partnership Annual Conference organized by Department of Education in September. They presented their on-going Secondary Mathematics Professional Development Center project for which they have been receiving grant funds from the Virginia Department of Education since 2010. For more information on the project, please visit the web site at <http://www.radford.edu/rumath-smpdc/AboutUs.html>

RU RESEARCHING: MELISSA “LUNA” BRETT: “ONE STEP AT A TIME”

During Summer 2014, Melissa “Luna” Brett participated in a research expedition across the fifth largest expanse of ice in North America, the Juneau Icefield. Luna recalls about the experience “This was a high level, international research program dedicated to bringing undergraduate students to the highest performing level in professional and academic sciences, and for me and I’m sure many others, it was the absolute crowning achievement of my years as an undergraduate student.” She says that the space is a “desolate and unforgiving landscape” but it provided her with an opportunity to study the glaciers, and the many complex ways those glaciers are changing.



Luna exploring an ice cave during the JIRP

The trip was full of challenges. “There were some really hard days, challenging myself against the elements, and against my own physical limits, but there were many more days filled with triumph and pride” recalls Luna. “Pushing past my breaking point brought me to the next level and there was no choice but to keep going, for myself and for my future, and everything I had worked so hard for back at Radford University.”

Luna said that the experience reminded her of her academic

challenges; that the opportunity was there before here, but she needed to push herself to reach it. She adds “Like many times before, in a hard class or an impossible exam, I just kept pushing, one step at a time I made the journey of a lifetime.” This experience is a great metaphor for how she selected her course of study in the first place.

“Like most people, I wasn’t sure about which major to choose, which one I would be passionate about, and which one would ultimately get me a job” Luna recalls. “I had always had an interest in earth sciences and a passion for the natural world, so geology was an obvious fit, but it wasn’t until I started exploring undergraduate research that I found an insane passion for geophysics, glaciology and ultimately research.”

After her first experiences working with Dr. Elizabeth McClellan in Southwest Virginia on a geologic field mapping project at Mount Rogers, Luna states that she developed a love for fieldwork. She cautions that she also realized “that research doesn’t end when the fieldwork ends, it’s really the beginning. After two semesters of working with that data to make a map, we took our findings to conferences and gave talks about the work.”

Following the conclusion to her work with Mount Rogers, Luna found herself with the opportunity to expand her research experience. “I was accepted into the Arctic Geophysics research class, which was going to Barrow, Alaska, to study sea ice and this project was a turning point for me” she states. “I knew my direction was changing toward work in physics, and this project was the perfect mix of a challenging environment and development of skills using geophysical equipment. Research helped me realize that I would need more math and physics to pursue the topics I was becoming interested in, so I added a second major in physics and a minor in math in order to be more competitive and get to the next level.”

One project inspired the next as Luna continued her progression within her major. “I knew my direction was going to be heading toward the Polar Regions, so I applied and was accepted to the Juneau Icefield Research Program where I was part of a two-month research expedition studying glaciers across the Juneau Ice Field from Alaska into Canada” she states. “Conducting undergraduate research has allowed me to try a variety of projects, develop useful skills, change my direction and narrow my field of interest, and ultimately led me to the decision that I wanted to continue my education and research in graduate school. Every single step I took, every individual research project brought me to where I am now, and I got here one step at a time.”

Luna has learned to discipline herself as she continues her work. “People often enjoy the fieldwork, collecting data and being outside, but the work continues once you get home, and it takes discipline, attention to detail, hard work and a lot of time to complete the project and show your work to others” she states. “The ability to finish what you start, and communicate your work to others is what being a professional is all about, and graduate schools look for people that are at this level.”

One of the major challenges that Luna has face in her journey is staying flexible and learning to make adjustments on the fly. “Sometimes projects change, or a piece of equipment breaks, and you have to improvise, fix things or change the plan” she says. “It’s all part of the work, and you’ll need to be flexible and keep a positive mental attitude to be successful!”

The senior wishes that she had realized some of the challenges that she would face when she was just starting her academic journey at Radford University. “I definitely wish I had taken more calculus-based physics classes and more computer programming” Luna says enthusiastically. “There will be a lot to learn in graduate school!”



Luna displaying her Highlander spirit on a glacier in Alaska with Atlin Lake in the distance (Photo by: Maya Smith).

Summing up her experiences, Luna wants to encourage undergrads to be willing to try new things and to be aware of opportunities. “Work hard and always be willing to change your plan because you never know where undergraduate research will take you, but you won’t find out if you don’t try” she advises. “Never give up, and you can get places you never expected! It’s important to remember that every mountaineer gets to the summit, one step at a time.”

You can learn more about Luna’s journey and the entire Juneau Icefield Research Project at <http://juneauicefield.com/blog/2014/8/13/the-final-traverse>

RU PLANETARIUM ANNOUNCES NEW FEATURE

From a cozy Radford University Planetarium seat, viewers can virtually experience several off world adventures on a unique tour of the solar system.

The Great Planet Adventures is the new main feature screening now at the RU Planetarium in Curie Hall on Tuesdays and Thursdays at 7:30 p.m. and at 10:30 a.m. on Saturdays through Oct. 30.

The Great Planet Adventures makes the viewer an interstellar thrill seeker. Viewers will zip line across the scorched Mercury surface or snowmobile in a Plutonian blizzard. Another adventure will be bungee jumping into outerspace from an asteroid, an experience the filmmakers, Space Update, liken to low-gravity diving from the tallest cliff or rappelling into deepest canyon in the solar system. Viewers will experience life without gravity's strong pull as they glide over the hydrocarbon lakes of Titan, jetpack in a geyser's spray on Triton or drive a monster truck along a steep lunar crater wall.



The RU Planetarium seats 45, including 32 reclined planetarium seats within its 24-foot diameter dome and can accommodate large groups. To visit the planetarium at times other than its regularly scheduled showtimes or with a group, contact Rhett Herman at 831-5442 or rherman@radford.edu.

All shows are free and open to the public. The planetarium is located in Curie Hall Room 43. Enter through Reed Hall from the main campus and follow the signs in the building. A complete RU Planetarium schedule can be found on the planetarium website.

RU ANTHROPOLOGICAL SCIENCES TO PRESENT “WORLDS OF ANCIENT MEXICO” LECTURE SERIES

Travel in spirit to the “Worlds of Ancient Mexico” later this fall without leaving your seat in Whitt Hall 204. On October 22nd, 29th and November 5th and 12th Dr. David S. Anderson will present lunchtime lectures on this theme.

The individual talks are (in order)

October 22 - Conquest & Revolution: The Fall of the Aztec Empire

October 29 - Love & Betrayal: The Legend of Lord 8 Deer and Lady 6 Monkey

November 5 - Force & Finesse: Power in the Ancient City of Teotihuacan

November 12 - Past & Present: Visions of Aztlan

They will all be in Whitt 204 at noon. People are welcome to come and bring their lunch and learn about ancient Mexico with us!

Conquest & Revolution: The Fall of the Aztec Empire



The Worlds of Ancient Mexico Lecture Series begins October 29
sponsored by the Department of Anthropological Sciences

RADFORD UNIVERSITY TO CELEBRATE NATIONAL CHEMISTRY WEEK – OCTOBER 19-25



Learn all about the sweet side of Chemistry during National Chemistry Week (NCW)2014, October 19-25. This week long celebration encourages chemists and chemistry enthusiasts to build awareness of chemistry at the local level. Local Sections, businesses, schools, and individuals are invited to organize or participate in events in their communities with a common goal: to promote the value of chemistry in everyday life.

To learn more about the event across America, please visit the American Chemical Society's NCW webpage at: <http://www.acs.org/content/acs/en/education/outreach/ncw.html>

CSAT CAREER CONNECTIONS

Dr. John Liptak from the RU Career Center will be present weekly in Stuart Hall lounge on Wednesdays from 8am until 5pm and on Thursdays from 10am until 3pm in Davis Hall to assist our students with resumes, internship and career planning.

STEM Career Fair – November 5 – Hurlburt Hall

CSAT CLUB CORNER

The CSAT STEM presented a demonstration of their newly constructed vortex cannon on October 4th during the Radford Highlanders Festival in Bisset Park. With gusty winds, the demonstration was challenging, but it will be presented once again alongside other science demonstrations at the RU Homecoming/Family Weekend Celebration on October 11. Teams within the club are also exploring additional outreach, programming, and robotics. The CSAT STEM club is open to all students interested in science and technology. Club meetings take place on Tuesdays at 6pm in Stuart Hall lounge.

The RU Chemistry Club meets each Wednesday in Currie 336 at 5pm. Upcoming events participation with Dr. Webster at the Virginia Science Festival and a bake sale at the end of October. The group is making plans for other activities including participation in National Chemistry Week October 19-25.

To include activities of other CSAT clubs and organizations, contact David Horton, rhorton@radford.edu.