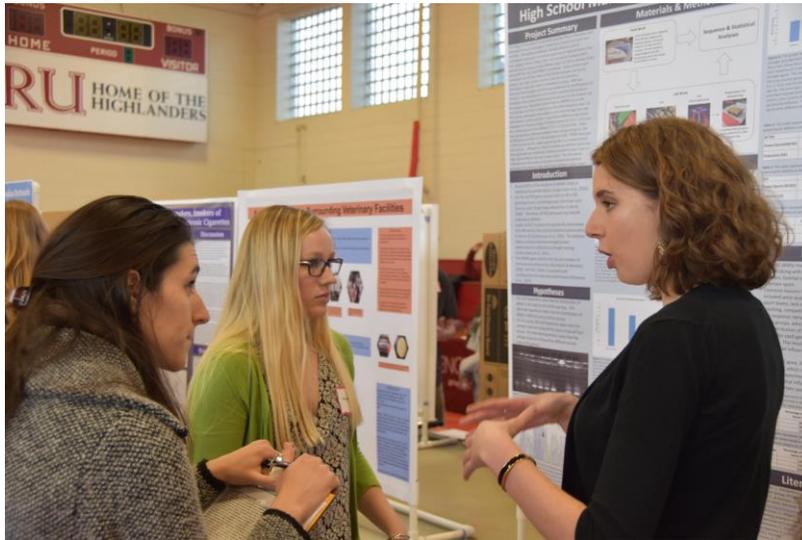


FROM THE DEAN'S DESK – March 31, 2017

THE RADFORD UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY NEWSLETTER



Students explain projects to judges during the 26th Blue Ridge Highlands Regional Science Fair

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RADFORD UNIVERSITY COMPUTER SCIENCE FACULTY FEATURED AT CYBERSECURITY CONFERENCE

Dr. Prem Uppuluri, Associate Professor of Computer Science was a featured panelist at a cybersecurity conference held in Roanoke on March 22. The Making Connections conference, hosted Wednesday by Roanoke County Public Schools and the Virginia Society for Technology in Education, was a new technology summit held with the goal of increasing the pipeline of students in cybersecurity. Radford University has been at the forefront of that effort in Virginia with programs such as a class for middle and high school students entitled “Data Security, Ethics and Privacy” as well as with training for teachers and other faculty. Dr. Uppuluri, along with additional members of the Department of Information Technology faculty created this programming, secured grant funding from the National Security Agency and have established the Center for Information Security at Radford University.

<http://www.radford.edu/content/csat/home/itec/information-security.html>

During the conference Dr. Uppuluri shared the RU efforts and stressed that the sooner students are introduced to cybersecurity practices, the more their interest will grow. He suggested educators think of ways to incorporate cybersecurity training into everyday lessons.

The event began with a video welcome by Senator Mark Warner and featured keynote speaker General James Clapper, former director of national intelligence under President Barack Obama. During his remarks, General Clapper emphasized the importance of the role of educators in helping students gain skills that will be needed by the cybersecurity community. The technical component such as coding is important, but so are communication and teamwork talents.

Dr. Uppuluri joined General Clapper on a panel discussing the current and future challenges in cybersecurity.

School superintendents and teachers from more than 60 schools and districts attended the conference as well as several companies and a few higher education professors.



Dr. Uppuluri (right) with General Clapper during the “Making Connections” conference.

This event is just the most recent in a series of intentional activities by the Radford University community to enhance cybersecurity training. Radford University was designated a National Center of Academic Excellence in Cyber Defense Education (CAE-CDE) by the National Security Agency (NSA) and the U.S. Department of Homeland Security (DHS) in June of 2016 and the RU Cyber Defense Club, coached by Dr. Uppuluri, has had great success in competitions in recent years with a major success at the Inaugural Virginia Cyber Cup held in Lexington on February 25 of this year. The Department of Information Technology is also presently hosting a regional Capture the Flag competition: “RU Secure CTF” for high school students in Virginia and Maryland. Having been presented for the last several years, this is one of the largest such competitions in Virginia attracting hundreds of the most talented high school students across the Commonwealth and in neighboring areas.

Learn more about RU Secure CTF at <http://www.radford.edu/content/csat/home/itec/rusecure-ctf-contest.html>

RU STUDENTS ATTEND WILDLIFE CONFERENCES

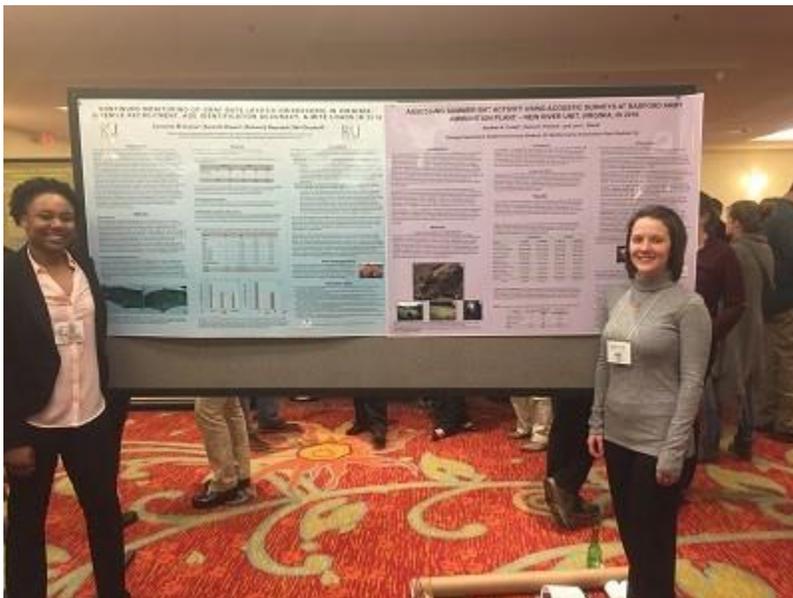
Twelve biology majors and one geospatial science major from the student chapter of The Wildlife Society at Radford University attended the annual conference of the state chapter of The Wildlife Society in Blacksburg, VA. Two students presented their research in the form of a poster. Senior Cameron Comer took home the runner-up prize for the best undergraduate student poster.

This was a great opportunity for students to learn about current issues in wildlife management in the Commonwealth and in the region. Students also were paired up for a student-mentor breakfast, which gave them one-on-one time to learn about the jobs of state, federal, and non-governmental careers in wildlife. Feedback from the professional biologists at the meeting was very positive towards RU students – as always, they represented the university well!

Students Heather Custer and Cameron Comer presented posters at the Virginia TWS annual meeting, and also attended/presented at the annual meeting of the Southeastern Bat Diversity Network (SBDN) in Asheville, NC.



Attendees included: Heather Custer, Cameron Comer, Justin Bentley, Cotey Bentley, Nicole Jones, Ruth Boylan, Carley Shears, Makayla Beckner, Monika Mattson, Miriam Minich, Kristy Clark, Nick Succop (not pictured), and RUTWS faculty mentor Dr. Karen Powers.



Heather Custer and Cameron Comer with their research posters at the SBDN conference.

Heather Custer: Assessing summer bat activity using acoustic surveys at Radford Army Ammunition Plant - New River Unit, Virginia, in 2016

Cameron Comer: Continued monitoring of Gray Bats (*Myotis grisescens*) in Virginia: Juvenile recruitment, age identification accuracy, & mite loads in 2016.

Story by Karen Powers.

GEOLOGY FACULTY FEATURED IN SCIENCE CHANNEL PROGRAM

Radford University Geology Instructor George "Paki" Stephenson was featured in an episode of "Secrets of the Underground," a new Science Channel television show that explores strange subterranean locations in the country.

In the episode, titled "America's Hidden Massacre," host Rob Nelson visits Mountain Lake in Giles County.

The lake has been mysteriously disappearing for years. Mr. Stephenson is a part of Geology Professor Skip Watts' Radford University research team that has been exploring the phenomenon since 2010. They, along with RU geology students, conducted high-tech research into the geology of the ancient lake using a remotely-operated submarine, sonar, electrical resistivity, Unmanned Aerial Systems (drones), mapping and flow monitoring.

A lot of this research and equipment – including spectacular drone footage - supported the show and Nelson's conclusion regarding the lake's disappearance.

"Working with the film crew and Rob Nelson was a unique experience," Mr. Stephenson said. "I am impressed with their professionalism. The show turned out well, and they (Rob Nelson) did come to the same conclusion we have had for years, that the lake was formed by a series of landslides, which made a

leaky dam. The amount of research the students and we have done, of which they had access to, anyone who studies this will see that if the Scientific Method is followed, the results soon become clear."

Filming for the Mountain Lake segment of the episode spanned over a two-day period in late fall 2016. The episode first aired on Feb. 28.



Mr. George "Paki" Stephenson (right) with program host Rob Nelson as they deploy the unmanned submersible vehicle at Mountain Lake.

Watch the full episode here: <https://www.sciencechannelgo.com/secrets-of-the-underground/>.

RADFORD UNIVERSITY HOSTS BLUE RIDGE HIGHLANDS REGIONAL SCIENCE FAIR

The Department of Chemistry and College of Science and Technology hosted the 26th annual Blue Ridge Highlands Regional Science Fair March 3rd and 4th in Peters Hall on the Radford University campus.

This was the seventh consecutive year that the regional fair had been held at Radford University. Chemistry Department Chair Dr. Christine Hermann and Associate Professor of Chemistry Dr. Kimberly Lane were co-directors for this year's event, which was open to students from 16 counties and three cities across the region. Chemistry Instructor Mr. Chris Bibeau serves as Scientific Review Committee chair for all projects.

The goal of the fair was to stimulate an active interest in science and engineering in young students, provide an unparalleled experience in research and presentations, and expose the public to the hard work the students are doing.

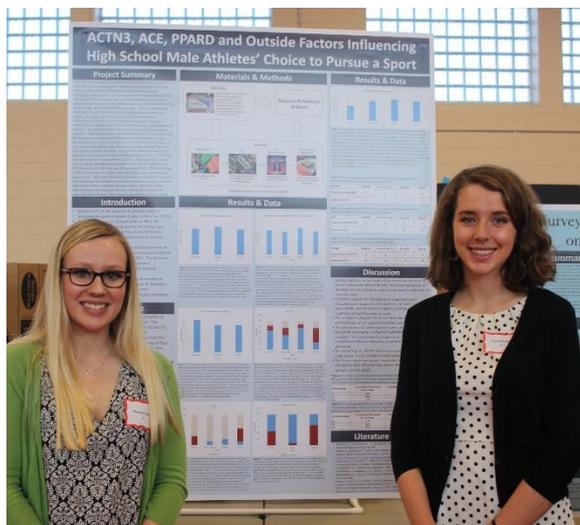
Through posters and oral presentations, participants presented the results of their research in the fields of animal science, behavioral and social science, biochemistry and chemistry, cell and molecular biology, computer science, earth and planetary science, environmental management and science, engineering, mathematics, medicine and health, microbiology, physics and astronomy, and plant science.

Students in grades six through eight competed in the junior division, and students in grades nine through 12 competed in the senior division.



Kaelum Hasler – Grand Award Winner

The science fair was open to students in the counties of Bland, Buchanan, Carroll, Dickenson, Giles, Grayson, Lee, Montgomery, Pulaski, Russell, Scott, Smyth, Tazewell, Washington, Wise, Wythe and the cities of Bristol, Galax, Norton, and Radford.



Morgan Fisher and Carly Porter – Grand Award Winners

The grand award winners were Kaelum Hasler from Blacksburg High School with his project "Post Consumer PET as Stock for Additive Manufacturing" along with Morgan Fisher and Carly Porter from Southwest Virginia Governor's School with their project "ACTN3, ACN, PPARD, and Outside Factors Influencing High School Male Athlete's Choice to Pursue a Sport."

These students will compete in the International Science and Engineering Fair in Los Angeles in May.

Students selected as Virginia State Science and Engineering Fair delegates will be competing at the state fair at the end of March on the campus of Virginia Military Institute. Learn more at <http://sciencefair.asp.radford.edu/>

ALTERNATIVE SPRING BREAK: REFORRESTING APPALACHIA

One of the major challenges in the Appalachian region is in dealing with the aftermath of mining and mountaintop removal. For the past several years, Radford University faculty and students have been working to reclaim several areas within the region by planting trees.

During spring break week, Dr. Rick Roth, Professor of Geospatial Science, and Dr. Matt Close, Assistant Professor of Biology, accompanied 13 students on a trip to Kentucky where they worked closely with Green Forests Work (GFW), a nonprofit organization, and by the Appalachian Regional Reforestation Initiative (ARRI), a federal program of the U.S. Office of Surface Mining and Reclamation. Dr. Close stated “we planted somewhere around 500 trees.” He added “each group had a bucket with ~50 trees in it and we had 8 planting pairs with a couple extra buckets of trees trickling in after we started) including but not limited to dogwoods, red oaks, white oaks, hickories, Virginia pines and American chestnuts which were blight-resistant 15/16 hybrids.”



Dr. Roth and Dr. Close working to plant trees in an altered landscape.



The 2017 Appalachian Reforestation Alternative Spring Break team.

Radford University has left an impression on the area, as several sites around the Appalachian region have seen the planting of thousands of new trees over the last few years. “Unlike most years, we had great weather for the planting” said Dr. Roth. “It was a great trip, I am always impressed by the students and this year was no exception – cooperative, friendly, interested, willing to work which makes the trip worthwhile.”

The Radford University Scholar Citizen Initiative was instrumental in supporting the trip and has been a partner throughout the years of this program.



This panorama from the planting site shows the challenge of reforesting the Appalachian mountains.

PRE-DENTAL CLUB AT RADFORD UNIVERSITY TO SPONSOR 5K CHARITY RACE

The Radford University Pre-Dental Club is sponsoring the Star City 5k to raise money for the Bradley Free Clinic in Roanoke.

“The clinic provides 100% free medical and dental care to low income working individuals” stated Jake Shelburne, President of the Pre-Dental club.

This year's race will be held on April 1st at the first pavilion in Bisset Park. Registration starts at 10AM and the race starts at 11. The cost to register is \$20, but you can save money by sharing the event on Facebook and/or by registering in teams of at least 3.

There will also be a silent auction and raffle that will include an Oral-B Pro 5000 bluetooth toothbrush.

The first place male and female runners will receive a one year membership to New River Fitness.



Saturday, April 1st, 11am at Bisset Park

All proceeds will be donated to the Bradley Free Clinic
in Roanoke, Va.

\$20 Registration Fee

T-shirts, Raffles, Prizes, Silent Auction and much more!

Please sign up or donate to the cause at the link below or by
using the QR code.

<https://www.raceentry.com/race-reviews/star-city-5K>



Pre-Medical Association



For more information, please visit: <https://www.raceentry.com/race-reviews/star-city-5K>

GEOLOGY GUEST LECTURES BRING GLOBAL EXPERTISE TO RADFORD

On Tuesday, March 21, the Department of Geology and the Association of Environmental and Engineering Geologists sponsored an evening of presentations by two distinguished geologists.

At 7pm, Mr. Callan Bentley from Northern Virginia Community College spoke about about three of the most fascinating and beautiful geologic places in the world in his presentation "A virtual Grand Tour of key geological sites in Iceland, Northern Ireland, and Scotland".

Mr. Bentley president of the Geological Society in Washington, DC and is a leader in developing virtual field trips using high quality images captured by gigapan technology similar to the work of Radford University's own Dr. Parvinder Sethi.



Mr. Callan Bentley

Ian Gammarino, a senior majoring in geology shared his thoughts on the presentation. "Mr. Bentley took the audience first to Rathlin Island in Northern Ireland and displayed his collection of Gigapan images of landscapes, outcrops, as well as hand samples. He also had 3D models of parts of the coastline and 360 degree pictures" he said. "We then went to the Giant's Causeway to see incredible examples of columnar jointing and on to the Grind of the Navir, an interesting erosional feature along the Northern coast."

Mr. Bentley then took the audience virtually to a variety of site, pointing out the geologic featured captured by the high-definition technology. "Mr. Bentley went on to St. Andrews and showed

Gigapan images of the longest trace fossil trackway found in the world, footprints and dragmarks left by a terrifyingly large sea scorpion called an Eurypterid." Ian added "He also displayed an instance of radial columnar jointing which I didn't know was possible until tonight."

Mr. Bentley shared a location for the resources he presented called MAGIC, the Mid-Atlantic Geo-Image Collection, which is housed on his Blog: <http://blogs.agu.org/mountainbeltway/>

"All in all, I was impressed with the inspiring nature of the topic of travel as well as his tone of presentation" concluded Ian. "Callan Bentley was well spoken, on the ball, and used advanced vocabulary, so not only was he taking great pictures, but it was clear that he knew, geologically, exactly what he was looking at."

Following Mr. Bentley at 8 pm was Dr. Scott Anderson, the Jahns Distinguished Lecturer, who spoke about a bit darker geologic occurrence that resulted in 43 dead, 49 homes destroyed at the Oso,

Washington landslide in 2014. His goal was to share not just what happened, but why and how it happened.

Dr. Anderson has had a notable career in engineering geology having previously served as the Geotechnical Engineering Technical Services Team Manager for the Federal Highway Administration's (FHWA) Resource Center where he led a national team of geotechnical engineers that assisted state and local transportation agencies through technical assistance, training and the deployment of new technologies.



Dr. Scott Anderson

Dr. Anderson shared images and stories from the Oso landslide which was primarily caused by forestry practices that left the area extremely vulnerable to damage during heavy rains, which had occurred prior to the incident. Another factor in the devastation was the de-regulation of codes in a landslide prone area. This location had a history of instability dating back to the 1930s, but political decisions had allowed practices that contributed to the disaster. More than 11,000 tons of wreckage had been removed from the slide area.

Dr. Anderson shared LiDAR imaging data from the area as well as gigapan images of the site, helping the audience to understand the aftermath of the event.

During the lecture, Dr. Anderson shared information that there had been a logging lawsuit since trees had been removed from the landslide site prior to the catastrophe, as well as a retaining wall being built at the toe of the landslide before movement as well.



Image from the Oso, Washington landslide as provided by the Seattle Times.

Following these lectures, Ian stated "One thing that I like about guest speakers is that they serve as role models, so not only do students learn about the material that is being talked about but also the successful, impactful, and efficient ways in which it is presented." He added "The two speakers tonight were top-notch, insightful, and inspiring."

The Jahns Distinguished Lectureship, established in 1988, is sponsored by the Association of Environmental

and Engineering Geologists and the GSA Engineering Geology Division. Its purpose is to provide funding for distinguished engineering geologists to present lectures at colleges and universities in order to increase awareness of students about careers in engineering geology.

DEPARTMENT OF BIOLOGY TO HOST ANNUAL BIOBLITZ ON APRIL 14 AND 15 AT SELU

Members of the Radford University community and the surrounding region are invited to participate in the annual BioBlitz sponsored by the Radford University Department of Biology. The event, which takes place at the Selu Conservancy each spring, is an outreach designed to help interested parties participate in activities featuring local animals and plants.

Events include a night hike to observe and capture amphibians and reptiles led by Dr. Matt Close, canoeing on the Little River, a spring plants walk led by Dr. Gary Cote and Dr. Christine Small, bird-watching led by Dr. Bob Sheehy and Mr. John Kell, and several opportunities to capture and observe small mammals.

April 14-15 – Bioblitz Selu Conservancy, Radford University

FRIDAY

- 4:00PM –small mammal trap-setting, meet at Farmhouse
- 8:00PM – Night hike to observe/capture amphibians and reptiles, led by Dr. Matt Close (RU)

SATURDAY

- 7:30 AM – Bird-watching – Dr. Bob Sheehy and John Kell (RU & NRV Bird Club)
- 9:00 AM – Small mammal trapping and handling – Dr. Karen Powers (RU & Virginia Master Naturalists)
- 10:30 AM – Spring plants walk– Dr. Christine Small and Dr. Gary Cotè (RU)
- ~12:45 – Canoe the Little River (RU and VT students)



“SPRING FLING” CAMPAIGN TO SUPPORT SUMMER BRIDGE PROGRAM

The Radford University Office of University Advancement is launching a new crowdsourcing fundraising program called “Spring Fling” to help raise money for campus programs. For 2017, the initiative will feature the CSAT Summer Bridge program, a week-long residential camp for sophomore, junior and senior high school girls interested in science, technology and math. Each year, the 60 - 75 participants (most of whom would be the first in their families to attend college) learn to recognize and enhance their innate abilities within specific STEM fields. They leave the camp inspired and encouraged to pursue degrees and careers in STEM. The program has been so successful, the reputation has spread far and wide, resulting in applications from all over the Commonwealth of Virginia, as well as more than a dozen states around the nation.

Summer Bridge incorporates classroom lectures and activities with fieldwork experience from across the College of Science and Technology and beyond. In 2017, the program has received a record number of applications, but has not yet identified the money to offer scholarships to most of the potential students.

There is also a unique opportunity during the month of April as CSAT has been challenged by the Mary Morton Parsons Foundation to raise \$700,000 in order to "unlock" their challenge gift of an additional \$350,000 for our Center for the Sciences! Gifts raised in this campaign will help achieve the total of \$700,000.

The campaign website will be featured on the CSAT webpages and social media. Anyone wishing to participate can visit the campaign website or contact David Horton via email: rhorton@radford.edu

The screenshot shows a crowdfunding campaign page for "Summer Bridge: Empower Females in STEM!" on the Community Funded platform. The page features a green header with navigation links: Blog, Resources, About Us, Contact, and a search bar. Below the header, there are links for "Build My Campaign", "Explore", and "Crowdfunding Solutions". The main heading is "Summer Bridge: Empower Females in STEM!" with the organizer listed as "David Horton in Radford, VA". A large photo shows a group of young women wearing red t-shirts that say "RADFORD UNIV. SUMMER BRIDGE". To the right of the photo is a "Make a Donation" button and a progress bar showing 0 supporters and \$0 raised. The goal is \$10,000 with 5 days left. Below the photo are navigation tabs: HOME, UPDATES, COMMUNITY, and COMMENTS. At the bottom, there is a message from David Horton: "Help us engage female high school students in the thrill of discovery and unite young women in the pursuit of scientific study." and a "CAMPAIGN HEROES" logo with the text "There are no campaign heroes yet".

CAMP INVENTION AT RU SCHEDULED FOR JUNE

Camp Invention is a nationally recognized, non-profit elementary enrichment program backed by the National Inventors Hall of Fame.

Over the past 40 years, and in partnership with the U.S. Patent and Trademark Office, the Camp Invention program has encouraged nearly two million children, teachers, parents, college students and independent inventors to explore science, technology and their own innate creativity, inventiveness and entrepreneurial spirit.

Kids from the first through sixth grades can participate in Camp Invention at RU this June 19 - 23. Local educators will serve as faculty to lead the week of hands-on fun at Radford University, sponsored by the College of Science and Technology.



Registration is now open. For more information, please visit:

<http://inventnow-web.ungerboeck.com/programsearch/moreinfo.aspx?event=16842>

CSAT TO HOLD SCIENCE EXPLORATION DAY ON SATURDAY, APRIL 8, 2017

Science Exploration Day at Radford University, hosted by the College of Science and Technology, is an event designed to engage residents from the region in STEM programs on campus. The event, scheduled for Saturday, April 8, is open to everyone and will include the following topics:

Trebuchet demo - Launch items across the RU Campus

Planetarium shows - Explore the solar system and beyond in the new, state of the art Radford Planetarium

Museum of the Earth Sciences - Learn about the treasures of the earth

Explore the "micro world" with the use of a Scanning Electron Microscope



Bug Biology - explore the frontiers of Bug Biology

Forensic Sleuthing: Solve the Crime Through Forensic Science - Attendees will participate in solving a mock case through the use of forensic science.

The Magic of Chemistry: WHAT'S IN THAT STUFF?!

Registration is required with a deadline of April 7, 2017.

Learn more at

<http://www.radford.edu/content/csat/home/science-day.html>