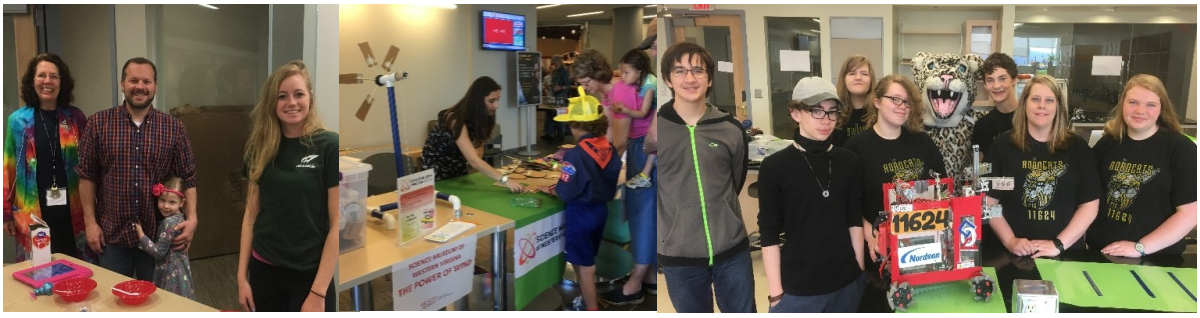
FROM THE DEAN'S DESK – April 18, 2018

THE RADFORD UNIVERSITY ARTIS COLLEGE OF SCIENCE AND TECHNOLOGY NEWSLETTER

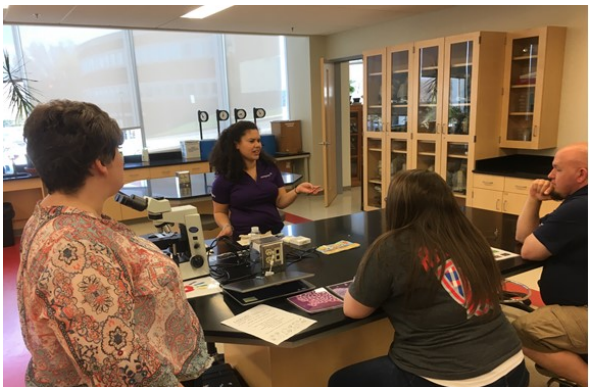


The first annual Radford University Science and Technology Festival was held on April 14

FIRST ANNUAL SCIENCE AND TECHNOLOGY FESTIVAL DRAWS ENTHUSIASTIC CROWDS

On Saturday, April 14, more than 400 participants packed the Center for the Sciences on the Radford University campus for the first annual Science and Technology Festival hosted by the Artis College. Departments within the college were featured as were the Radford City Public Schools "Robocats" robotics team, regional partners such as Novozymes Biologicals, The Science Museum of Western Virginia, and Mill Mountain Zoo. From roaches to robots, macaws to the magic of chemistry, and enzymes to rock mines, there was something for all ages to explore and discover during the six hour event.

The day began with shows at the Radford University Planetarium and many exciting exhibits spread around the building. Roachzilla, featuring Madagascar hissing cockroaches, was a highlight for many who had never encountered one of the unique biotransformers previously. Some were bold in holding a "hisser" others were a little more guarded.

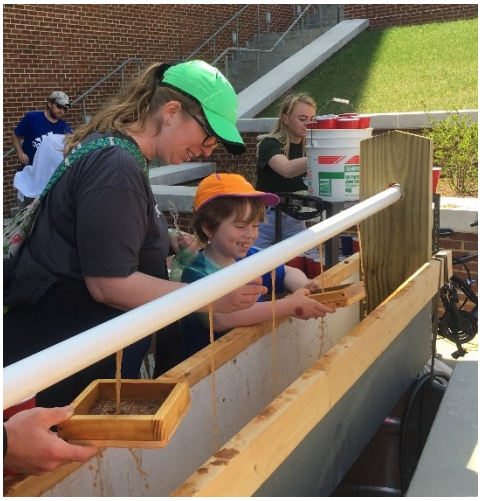


Novozymes Biologicals

Novozymes Biologicals, a long-time partner with the Artis College set up an exhibit in the biology lab that they named in the center. Participants met a microbe and learned how enzymes can help humans with plant production in many ways.

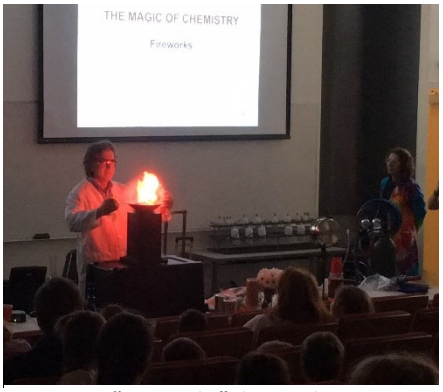
On the ground floor of the building, guests did their best to identify bone specimens and then attempt to reconstruct a skeleton with the help of members of the Anthropology Club. They also had an opportunity to learn about archeology and primitive stone tools from Dr. Jake Fox and received a digital anatomy overview from Dr. Donna Boyd.

At 11:30am, the crowd was treated to the debut of the "Glowing Rock Mine" in the Museum of the Earth Sciences. Mr. George Stephenson, director of the museum, and Dr. Steve Lenhart, retired geology faculty member and founder of the museum, led a team of students to create the exhibit which is fully immersive in nature and not only featured brightly glowing rocks under different lighting conditions, but also a section on coal mining and gemstones.



Wildwood Gem Mine

Hands-on geology took place in the new "Wildwood Gem Mine" which was set up in the Main Street Plaza area of the Center for the Sciences where kids under 12 years old panned for gems and other stones.



"Fireworks" during the Magic of Chemistry Show.

Dr. Francis Webster delighted the crowd with his famous Magic of Chemistry show where spectators learned about the content of the different colors of fireworks, how we could make a rocket using Ritz crackers, weld steel with a simple pepperoni stick and extinguish a fire with earwax.

Chemistry was a highlight throughout the day as guests participated in a variety of exhibits including learning about how chemists use glassblowing techniques to create their tools. One of the most popular hands-on displays was the creation of slime using household items. Dr. Chris Monceaux and his daughter Vivian, led participants as they made their own gooey concoctions complete with color and glitter.

The Science Museum of Western Virginia, based in Roanoke, brought a demonstration of the power of wind and helped participants build rotor and turbine designs to generate enough lift to raise a bucket on a string. Harder than it sounds, the exhibit showed just how much effort goes into transforming energy.

There was an energy in the air with every squawk echoing through the building from Rita the military macaw, as a part of the exhibit from Mill Mountain Zoo. Guests were able to encounter small python, a gecko, and a red footed tortoise along with Rita.

The celebration actually began the night before on Friday, April 13 at 6pm with guest speaker Ms. Zonnie Gorman, a recognized historian on the original Navajo Code Talkers of World War II. More than 150 students, faculty, staff and guests were captivated by her presentation entitled **Growing Up with Heroes,** a touching and riveting story about the original Navajo Code Talkers. This very first group – the First twenty-nine – was the pilot project in 1942 who created the first Navajo code. As a historian and the daughter of the oldest member, Carl Gorman, Zonnie expertly wove her personal connection and intimate knowledge with thirty years of archival research and collected first account stories.

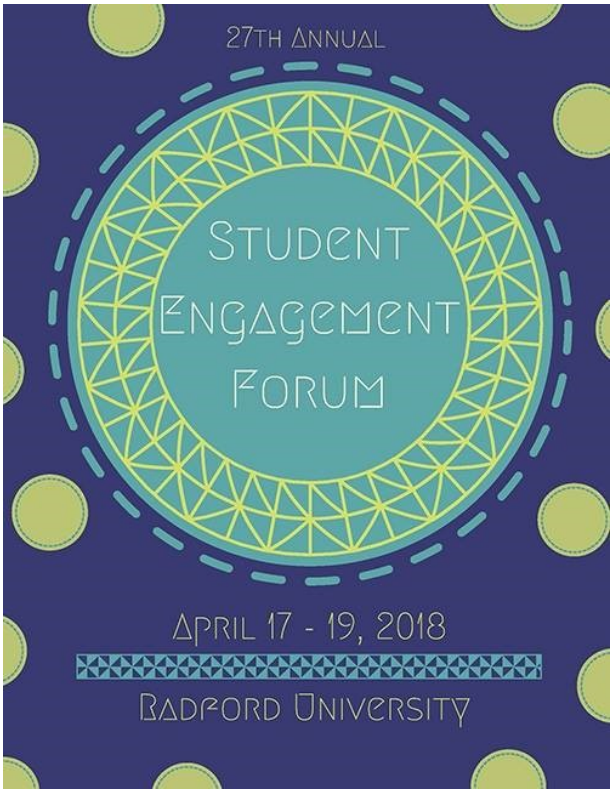
Zonnie Gorman

One highlight of the event was Ms. Gorman taking guests through the creation of the initial Navajo code and how their life experiences, cultural upbringing, and sheer ingenuity helped secure America's freedom in the Pacific.

Ms. Gorman was also featured on Saturday morning in the Center for the Sciences along with Dr. Neil Sigmon, Professor of Mathematics and Statistics, where they showcased the art of the Navajo code and cryptology in general. Guests were able to hear an example of their name as it would have been encrypted by the Navajo code.

The event was a rousing success and a second installment of the program is being planned for 2019.

ARTIS COLLEGE FEATURED AT STUDENT ENGAGEMENT FORUM ON APRIL 19



On Thursday, April 19, students from the Artis College of Science and Technology will be featured in a nine sessions to be held in the Center for the Sciences as a part of the 27th annual Student Engagement Forum which runs April 17 – 19, 2018 across campus.

Thursday, April 19th

1. Geospatial Science Poster Session
   CS Lobby 2:00 pm-3:00 pm

2. Anthropological & Forensic Sciences Poster Session
   CS Lobby 3:15 pm-4:15 pm

3. Biology Poster Session I
   CS Lobby 4:30 pm-5:30 pm

4. Biology Oral Session I
   CS M73 5:00 pm-6:15 pm

5. Biology Oral Session II
   CS M73 6:30 pm-7:45 pm

6. Biology Poster Session II CS Lobby 7:30 pm-8:30 pm

7. Multidisciplinary Oral Session CS M70 5:00 pm-6:00 pm

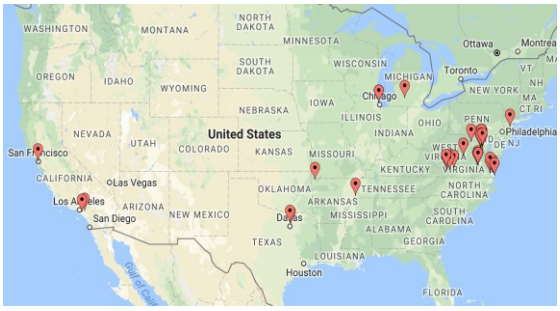
8. Chemistry Poster Session CS Lobby 5:45 pm-6:45 pm

9. Geology Poster Session CS Lobby 5:45 pm-6:45 pm

Radford University students get the chance every spring to share their research, scholarship, and creative works at the Student Engagement Forum. The Office of Undergraduate Research and Scholarship (OURS) invites you to come see the outstanding work that has been occurring in all corners of campus this past year. In told almost 400 students will be sharing well over 200 presentations in a wide variety of fields April 17 through the 19th. The entire university community is encouraged to attend.

RUSECURE CYBER SECURITY CHALLENGE CHAMPIONSHIP TO BE HELD ON APRIL 28

What began with more than 120 teams in the Fall of 2017 is now down to the elite eight in the 2018 RUSecure Capture the Flag contest. The initial round was geared toward teaching participants how to conduct the competition with many hints and helpers. More than 500 students from across the United States participated.



Students from across the continental United States participated in RUSecure 2018.

During the spring semester of 2018, the qualifying round took place and more than 65 teams from Virginia, Michigan, Illinois, Arkansas, Pennsylvania, Texas, and California participated.

"This was, by far, the most competitive contest we have seen to date," said contest co-director Dr. Joe Chase, professor of Information Technology at Radford University. "The top 8 teams are separated by less than 5,000 points and all of them earned at least 77% of the points available in the contest."

The top 8 teams have been invited to campus for the championship event on April 28th.

Poolesville High School -- U+202e

Lord Fairfax Community College -- CTRL+ALT+DEFEAT

New River Community College -- The Defense Mechanisms

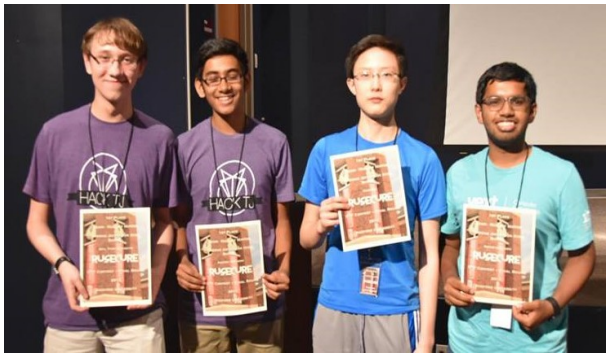
Thomas Jefferson High School for Science and Technology -- TJCSC

Richardson High School - Microsoft Tech Support

Marshall Academy -- DownloadMoreRam

Poolesville High School -- Los Pollos Hermanos

Lord Fairfax Community College -- The 404s



2017 RUSECURE Champions, Thomas Jefferson High School Hungry Hippos

Topic areas featured in the contest include the anatomy of an attack, an introduction to networking, cryptography, forensics, web security, and Windows/Linux security.

Finalists will participate in a variety of activities including a Capture the Flag contest. Scholarships will be offered to all finalists based upon placement in the contest.

Contest Co-Directors are Dr. Joe Chase – jchase@radford.edu and

Dr. Prem Uppuluri - puppuluri@radford.edu.

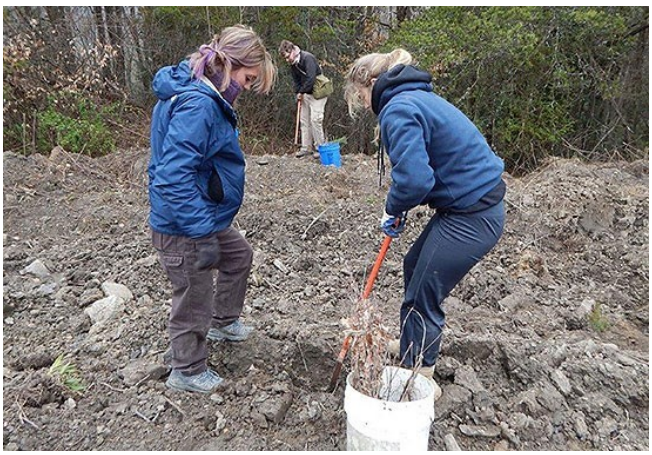
ARTIS COLLEGE FACULTY AND STUDENTS HELP REFOREST A PART OF KENTUCKY DURING SPRING BREAK

What did you do over spring break?

Go someplace warm? Visit family and friends back home?

Plant trees on the reclaimed land of an abandoned coal mine in central Kentucky?

That's what a handful of students and a couple of Radford University faculty members – and one librarian – did as part of their week away from books, lectures and labs.



Biology majors Samantha Jones (left) and Jordan Chittick dig into rocky soil to plant a tree on the site of an abandoned coal mine in Daniel Boone National Forest.

They loaded up in two vans, drove five and half hours to Daniel Boone National Forest, grabbed some shovels and buckets full of seedlings and planted white and red oak, black cherry, white pine and some hybridized American chestnut trees for a few hours on a 40-something degree Wednesday in March.

"It wasn't raining or snowing this time. We've had trips like that before," said Geospatial Sciences Professor Rick Roth, who has been organizing alternative spring break trips, in good weather and bad, like this one for several years.

The Radford University volunteer group worked with Green Forests Work, a nonprofit organization aiming to re-establish the health and productivity of Appalachian forests that once were mined for coal and then left abandoned. Coal companies planted non-native grasses, leaving the area bearing no resemblance to the lush mountains that once stood there.

"We were able to see firsthand how mining has influenced the Appalachian landscape, culture and community," said Lisa Dinkle, an instruction librarian for McConnell Library.

Green Forests Work removes the exotic vegetation. It cross-rips the soil with bulldozers to loosen compacted ground, and then organizers volunteers to plant native trees.

"It was interesting to learn about the different types of vegetation that could be implemented to help re-establish the landscape and the opportunity to introduce such species as elk onto these landscapes," said Cotey Bentley, a senior from Christiansburg who is majoring in geospatial science and minoring in biology.

The project was "fun and insightful" for Samantha Jones, a junior biology major from Pulaski. "It was extremely rewarding to see what dedicating a small amount of time can contribute to the near future," she said.

The Radford students worked along with other students from Drew and Xavier Universities on the national forest site. “What our group is doing is a drop in the bucket in terms of the scale of what needs to be fixed,” Dr. Roth said. “The good news is we can correct the impacts made by mining.”

Senior Leah Cort knows the group is making an impact. She went on last year’s trip to a different location in Daniel Boone National Forest, near London, Kentucky. She was so inspired, she knew she had pick up a shovel and do it again.

“It’s truly a great feeling knowing you’re helping by giving back what was taken by such a devastating industry,” said Cort, a biology major from Virginia Beach.

That’s one of the main objectives of the alternative spring break program.

“I wanted our students to get a taste of doing some meaningful volunteer work,” Roth said. “Something that could make an impact.”

Before the planting commenced, students spent time preparing and learning about the project, the mining industry and the region.

On the Monday before loading into the Kentucky-bound vans, they met in a Cook Hall classroom. There, Roth talked to students about coal surface mining regulations. Biology Assistant Professor Matt Close, who co-led the excursion, spoke about the region’s bio-diversity and Appalachian Studies Director Theresa Burriss gave a lesson about the cultural aspects of coal mining and mountaintop removal.

On the way to Kentucky, the group stopped in Wise County, Virginia, to tour the Powell River Project, an area hosting research and education programs designed to enhance environmental restoration and water-resource protection in coal mining areas.

Jordan Chittick, a sophomore biology and chemistry double major from Ruther Glen, said she “felt accomplished planting the various trees to restore biodiversity in our specific site,” but soon realized “there were many more sites that required the same treatment.”

The mountains and their communities have been “permanently altered by manufacturing and energy extraction industries, and we cannot go back in time to change their practices,” Close said. “Rather than throw our hands up and say, ‘well, nothing really can be done,’ we instead pack our bags for a few days, put our dibble bars in the ground and plant hundreds of trees to restore, patch by patch, the vast Appalachian hardwood forests that once populated the Appalachians.”

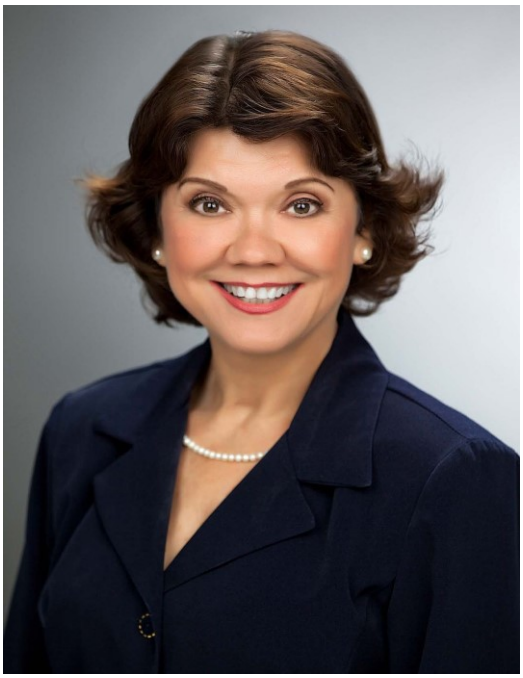
It’s not an experience students can gain in a classroom setting, the biology faculty member explained. “We have to go there.” In doing so, “students come away with a better understanding of the geology, biological diversity and cultural richness of the area,” Dr. Close said. “We hope they carry this with them throughout the rest of their time here at Radford and beyond.”

Story by Chad Osborne

VIRGINIA BLUE RIDGE SECTION OF THE AMERICAN CHEMICAL SOCIETY TO HOLD MEETING APRIL 20th

The 693rd Meeting of the Virginia Blue Ridge Section of the American Chemical Society is scheduled for Friday, April 20, 2018 on the Radford University cmpus. The program features a keynote presentation by Dr. Donna J. Nelson, Professor of Chemistry at the University of Oklahoma, 2016 President of the American Chemical Society, and science advisor for the hit TV show Breaking Bad.

Dr. Nelson will speak in McGuffey Hall, room 203 at about 7:15pm following the social hour and poster session in the Main Street Level of the Center for the Sciences at 5:30pm and an awards ceremony in McGuffey 203 at 7pm.



Dr. Donna Nelson

Dr. Nelson will present *The Science of Breaking Bad: A Look Behind the Hollywood Screen* As science advisor of the hit TV series Breaking Bad, Dr. Nelson will speak about her experiences in Hollywood and how the world of science and film connect. She will reveal how science 9related information behind the show was crafted in order to support the actors and engage the public. Dr. Nelson also will discuss her interactions with script writers and her insights into the roles of science advisors in television and film production.

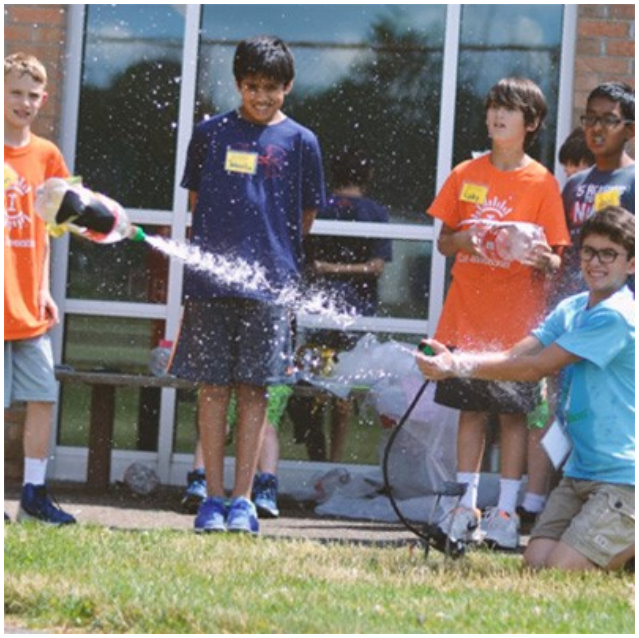
Dr. Nelson received her PhD in organic chemistry in 1980 from the University of Texas. Her research has focused most recently on single-walled carbon nanotube (SWNT) functionalization, especially SWNT-biomolecule conjugates. Dr. Nelson is also involved in developing America's scientific readiness, a broad area of study in which she focuses on classroom innovations, on correcting organic chemistry textbook inaccuracies, on ethnic and gender diversity in research universities, and on improving the image and presentation of science and scientists to the public. Dr. Nelson was named an ACS Fellow in 2010 and served as President of the American Chemical Society in 2016.

Dr. Nelson was also recently announced as one of 70 of the Most Inspirational Women Leaders Impacting the World in 2018.

The program will also feature the presentation of several awards including recognition of the James Lewis Howe awards to outstanding students in the region.

For more information, please contact Dr. Christine Hermann at chermann@radford.edu

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 Artis College of Science and Technology.

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

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

ARTIS COLLEGE TO HOLD COMMENCEMENT RECEPTION AND AWARDS CEREMONY ON MAY 4th

There will be an Artis College reception and awards ceremony in conjunction with Radford University commencement activities on Friday, May 4th at 2pm in McGuffey Hall room 203. During the event there will be special recognition of graduates of the Biology Connections program, ELITES Scholars, and Dean's Scholars for 2018. The Outstanding Teaching award will also be presented as will the Artis Outstanding Faculty and Student awards in a special presentation by Mrs. Nancy Artis '73.

All faculty and graduating students are invited to join in the festivities. To RSVP, please notify your Department Chair's office.