FROM THE DEAN'S DESK – February 3, 2017

THE RADFORD UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY NEWSLETTER

RU Biology Students at the Society of Comparative Biology Meetings in New Orleans.

RADFORD STUDENTS PRESENT ARCTIC RESEARCH AT AMERICAN GEOPHYSICAL UNION MEETING

In December, a team of students who participated in the 2016 RU Arctic Expedition to Barrow Alaska traveled to San Francisco with Dr. Rhett Herman for the American Geophysical Union meeting to share their findings from their polar ice research. Logan Fisher, a sophomore majoring in physics; Katie Mankowski, a sophomore majoring in biology and mathematics; and Ross Robertson, a senior majoring in physics; met with hundreds of professionals from across the United States and showcased the Radford University experience in the Arctic.

Logan Fisher, Katie Mankowski, and Ross Robertson at the AGU Fall Meeting.

"I thoroughly enjoyed my time at the AGU" said Logan. "It was a great learning experience - getting to see how people present their research while getting input on our own. It was also very exciting to get to meet all kinds of people who all shared the common goal of learning more about the environment (mostly terrestrial, but some solar)."

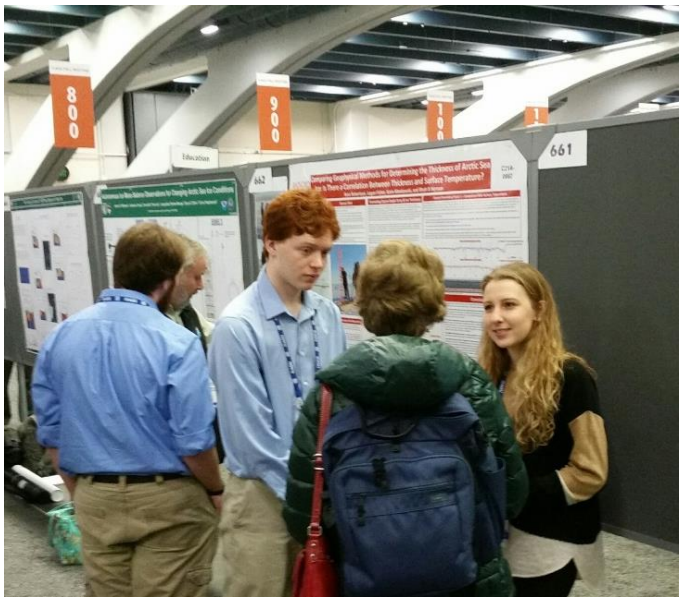
Ross agreed. "On the way to San Francisco, I was extremely excited. I kept seeing people at my gate at the airport with the poster tubes and felt a bit of a connection with them."

The experience was a bit overwhelming in its scale. "When I got to San Francisco, I was excited to be in a new city that I'd never been to before" Ross added. "When we got to the meeting place the next morning, the sheer size of it astounded me." "To give you a better sense of the size, the picture (to the left) shows 5 brown-orange posters hanging from the ceiling which were used to enumerate the rows" Ross recalled. "Each poster hanging from the ceiling was 100 greater than the one before (going left to right) and the last poster in the hall was either 3200 or 3500."

One section of the "poster hall" at the AGU Meeting.

The students explored the site and were excited to make new discoveries. "We walked through the hall and one of my favorite things was seeing areas of posters full with equations that I had both seen before and ones I hadn't" said Ross. "The

next day was our presentation and after all the nervousness while setting up, we had someone at our poster as soon as we finished and he was there for about an hour or more discussing what was on our poster."

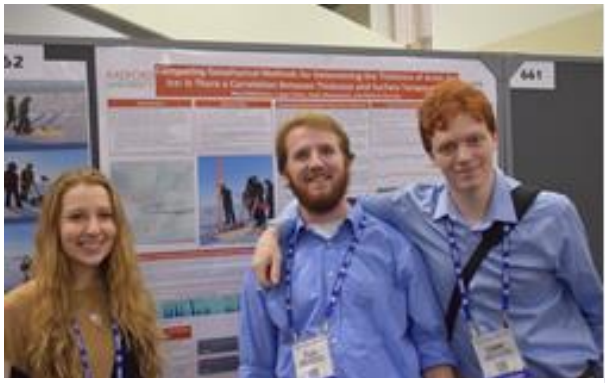


RU Students had a steady stream of people interested to learn more about the polar ice research.

Katie Mankowski added "The one day we presented our poster out of the 5 days that the conference is held, was my birthday. I couldn't have asked for a better present than being able to share and test our knowledge, skill, and passion with others in the field." She also mentioned "It will definitely be a hard birthday to beat, especially since we were able to bring our McSled Jr. (microclimate sled, junior) which we designed as a demonstration of the equipment we used to collect surface temperature data in Barrow."

The AGU presentation experience was a little easier than Katie expected due to her pervious opportunities to share her work. "The small talks we gave both in Barrow and at Radford University helped me feel comfortable and well-prepared for the audience at the AGU Fall Meeting" she said. Katie did note that "One of the harder tasks in San Francisco was accepting criticism or critique from other professionals in the field. However, that's hardly something unheard of in the field of science or of research. There is nothing like breaking the ice on your first big research presentation and coming back to Virginia, I really felt like I was unbreakable." Katie also mentioned that she was looking forward to her next steps as well as the future work planned for the polar ice research. "I cannot wait to continue research in the stem field and I'm excited to see what the next group of Barrow-bravers has planned" she said.

Following their presentation time, the team had an opportunity to visit the popular areas of the city. "We took the rest of the day doing our touristy stuff going to the Golden Gate Bridge, Pier 39, Fisherman's Wharf, and Ghirardelli Square.

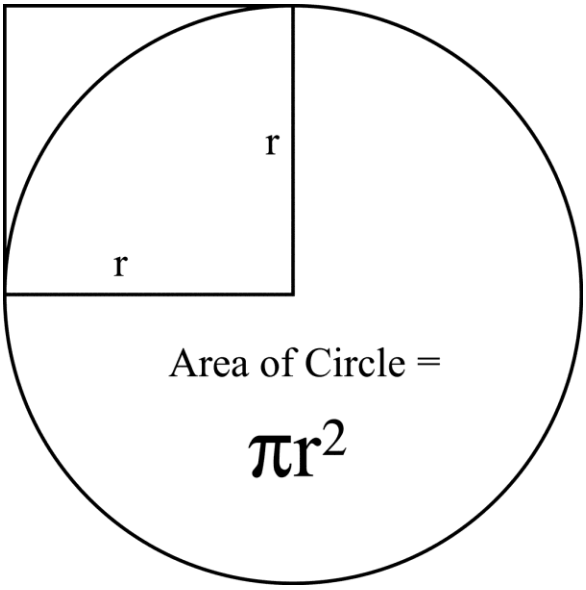

Katie, Ross, and Logan during a break at the poster sessions.

In summing up his experience, Logan stated "I definitely would recommend going to anyone who has the opportunity to in the future." Ross added "Overall, I think it will definitely end up being one of the most important experiences of my life. It was great to learn some presenting skills in a real way (trial and error) that many don't get the chance to until grad school."

WRAP YOUR MIND AROUND THE AREA OF THE CIRCLE: MATH STUDENTS TO PRESENT AT MARCH VCTM MEETING

Members of Dr. Agida Manizade's Math 335 class will be featured speakers at the 2017 Virginia Council of Teachers of Mathematics annual conference in Harrisonburg, Virginia on March 10 and 11.

The group, consisting of Mr. Matthew Akers, Ms. Danielle Banks, Ms. Holly Brendle, Mr. Dominique Epps, Ms. Rachel Funkhouser, Ms. Hannah Graf, Mr. Kenneth Guzman, Ms. Kattie Isom, Ms. Rebecca Stephens, Ms. Valerie Wallace, Ms. Katelyn Winkler, as well as Dr. Agida Manizade, will present work that they developed as a part of their "Foundations of Geometry" class. Titled "Wrap your mind around the area of the circle," the presentation will focus on ways to help students have a greater understanding of abstract theories regarding shapes.



You can learn more about the VCTM and the conference by visiting www.vctm.org.

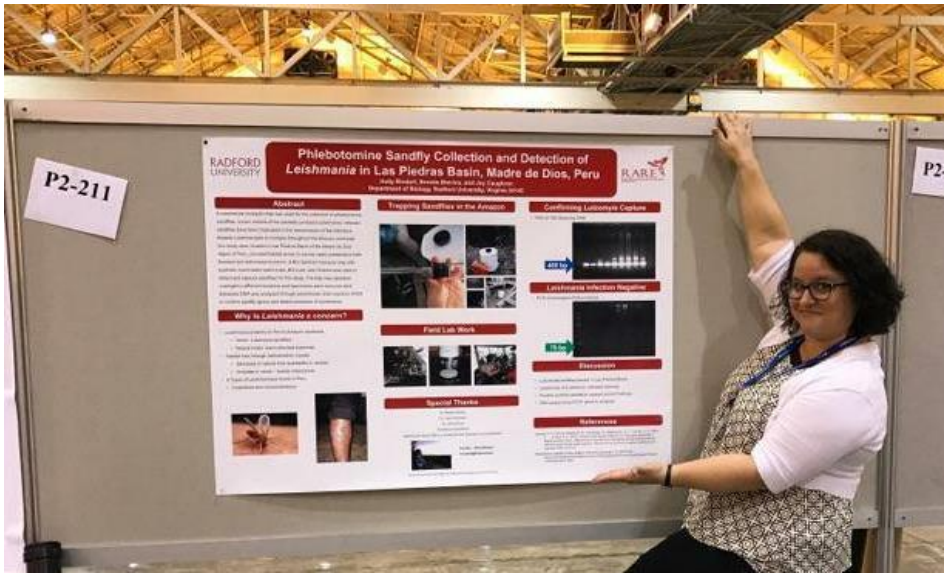
VCTM
VIRGINIA COUNCIL OF TEACHERS OF MATHEMATICS

RU BIOLOGY MAJORS PRESENT RESEARCH AT NATIONAL MEETING

RU Biology majors presented their research at the national meeting of the Society for Integrative and Comparative Biology annual meeting held January 4-8, 2017 in New Orleans, LA.

Rebecca Cox, Miracle Davis Holly Rindorf, Ruth Boylan and Alex Atwood were among the students who participated in the conference and presented their research.

Rebecca Cox, Miracle Davis Holly Rindorf, Ruth Boylan and Alex Atwood explore New Orleans at the 2017 SICB meeting.



Biology major Holly Rindorf presented her research based on work she conducted during the 2016 Radford Amazonian Research Expedition.

Students had the opportunity to learn from other participants from across the nation as well as hone their presentation skills during the conference.

Learn more about the SICB Meeting at www.sicb.org/meetings/2017/

SOCIETY OF PHYSICS STUDENTS RADFORD CHAPTER VISITS THE AMERICAN MUSEUM OF NATURAL HISTORY

In January, the Radford University Chapter of the Society of Physics students visited the American Museum of Natural History and the Rose Science Center in Manhattan. Sarah Garza, a senior majoring in Physics at Radford, shared the experience.

On their first full day in the city Sarah recalled “We got up early and hit the museum, our first exhibit being the Dark Universe show in the Hayden Planetarium.” Her response to the show was that “It. Was. Awesome.”

The group came close to an encounter with a different type of star. “We almost got to meet Neil deGrasse Tyson too except he wasn't in his office at that moment which was sad for all of us, but the club left him a T-shirt and correspondence” added Sarah.

Radford University SPS Students at the Rose Science Center in New York.

Sarah Garza and a Triceratops
(or a Tri-Sarah-Tops if you prefer.)

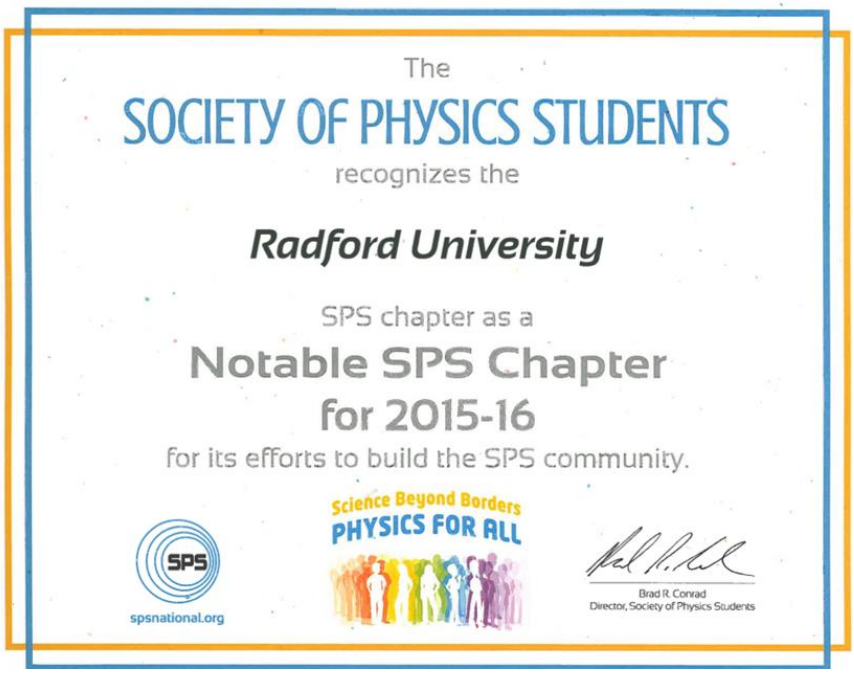
“There was also a huge section on meteorites which, I've never seen one up close, so to me it was like coming face to face with all the wonders and possibilities of space and mineralogy” stated Sarah.

From the wonders of the solar system to the giants of the earth, the museum featured many great exhibits in a variety of subjects. “I think the coolest fossils on display other than the T-rex were the Mammoths, the Triceratops, and the newly discovered Titanosaur which was way bigger than the Brontosaurus” she recalled.

In addition to the experience with science at the museum, the students visited some of the highlights of the city including the Empire State Building, Central Park, and an especially moving visit to the World Trade Center and the September 11 memorial site.

"After the empire state building we went to the 9-11 memorial and the new world trade center site" Sarah recalled. "Now that was like being in a dream. Of all the devastating things to happen in this world, to America, we were standing right where it all happened."

The 9-11 Memorial in New York.



This type of enrichment trip that adds to the academic experience for students is a part of the mission for the SPS chapter and one of the reasons that they were recently recognized by their national organization as a "Notable SPS Chapter for 2015-2016." Josh Carroll, a senior Physics major, organized the excursion to New York.

RADFORD UNIVERSITY PLANETARIUM SETS RECORD AND OFFERS NEW OPPORTUNITIES

The Radford University Planetarium continues to hit new heights since moving to its new home on the Main Street Level of the Center for the Sciences in January of 2016. Even in shortened year of presentations, the Planetarium set an attendance record. The calendar year 2016 saw 4,209 visitors; the previous record in the previous space was 3,802 back in 2010. With new opportunities for guests to experience the facility, the Planetarium appears to be ready to set new records in 2017 as well. “The planetarium numbers tell me that the planetarium is already fulfilling its singular purpose of science—specifically astronomy—education” stated Planetarium Director Dr. Rhett Herman. “It’s a spectacular place, and it has drawn more people to our campus than ever before.”

Dr. Herman added “The great thing is that classes other than just the astronomy classes have used it. One example is my UNIV 100 class and the individual presentations they created for that class using the state-of-the-art Digistar 5 software. You might like to know that this is the software that was used in the Project Genesis animations in the 1982 movie ‘Star Trek II: The Wrath of Khan.’ “

As for new opportunities for guests to visit, the Planetarium is piloting an expansion of the show offerings for school age children. “In consultation with the Robert Graham, Superintendent of Radford City Public Schools, we’re going to offer on a trial basis a set of regular shows on Tuesday and Thursday afternoons at 3:30” said Dr. Herman. “The goal is to give K-12 students another fun after-school option. These shows will welcome all attendees and will take them on various voyages through the night sky, the solar system, and the universe.”

These new events are in addition to the regular Tuesday and Thursday evening shows begin at 7 p.m. Saturday morning shows - geared toward a younger audience - begin at 10:30 a.m.

The first series of Tuesday/Thursday shows this semester is called "Stellar Origins." The show was created by Radford University physics major Josh Carroll. Carroll describes his show:

Nebula image created by Josh Carroll for his show “Stellar Origins.”

"What are we made of? Where did that stuff come from? How are we here? These are questions that have been asked by humanity throughout the ages. Many answers have been given by many different schools of thought, but it wasn’t until relatively recently that we’ve been able to provide a scientific answer; stars. Come join us in our planetarium as we fly deep into the cosmos and witness the life and death of the celestial furnaces responsible for all that we see. We will explore the early stages of a star’s life, how it sustains itself, its eventual death and what that means for life in the universe as we know it.”

Saturday morning shows, which begin Jan. 28, are called "Earth's Wild Ride."

The kid-friendly show imagines Earth as a distant place you once called home but could never visit again. Set on the surface of the Moon in the year 2081, a grandfather, granddaughter and grandson watch a solar eclipse from scenic cliffs overlooking their moon colony. Conversation leads to contrasts between the moon, the only home the granddaughter knows, and the Earth, where the grandfather has spent most of his life. As they watch the Moon's shadow move across Earth, the grandfather tells stories of crashing asteroids, erupting volcanoes, roaring dinosaurs, electrifying lightning and booming thunder. Adventure and appreciation for home fill this 20-minute journey back to the Earth.

Parking for the shows is typically available in Lots B or C, next to the planetarium in the Center for the Sciences. For those parking on campus for the 3:30 afternoon shows, metered parking spaces are available in Lots B or C, or free parking passes are available at the “parking” window on the main floor of Heth Hall. A campus and parking map is available from Radford Universit Parking Services.

The planetarium will also be utilizing toolkits from the National Informal STEM Education Network in some of its programming. “The NISE toolkits will be a great resource to help in the Planetarium’s mission of science education” said Dr. Herman. “These materials have been developed by NSF-funded space- and earth-science scientists and educators, and are specifically designed for hands-on STEM learning.”

Dr. Herman added “The kits will complement the spectacular things that they will have seen in the planetarium. Any time people get to do hands-on activities after seeing something, it clarifies that oft-quoted say from Confucius: “I hear and I forget. I see and I remember. I do and I understand.” Our visitors will ‘hear’ and ‘see,’ and then ‘do.’ They won’t forget.” The Radford University Planetarium is one of only 5 places in VA that will receive these, resources.

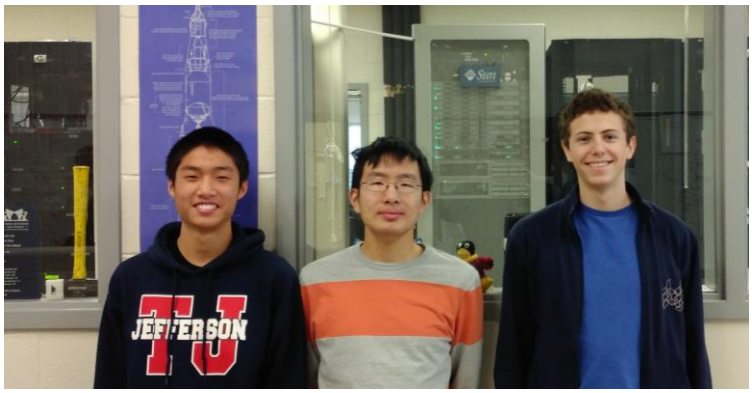
In addition to serving as a rich resource to the community and regional educators, the Planetarium is also providing outstanding experiences for current Radford University students. “The three workstudy students who can run the shows are also getting more out of it than they had thought” said Dr. Herman. “They are getting a great deal of communication and public speaking experience, something that employers desperately want in applicants.”

Learn more about the planetarium on the Radford University website: www.radford.edu/planetarium

DEPARTMENT OF INFORMATION TECHNOLOGY TO HOST CYBER SECURITY CHALLENGE

In March and April, the Department of Information Technology will host a Cyber Security Challenge for High School students. These contests will challenge students in a wide variety of topic areas including anatomy of an attack, an introduction to networking, cryptography, forensics, web security, and Windows/Linux security.

The qualifying round provides an opportunity for students to test their mettle against their peers and continue to hone their skills. Earning their way to the on-campus finals should provide an experience they will never forget as they learn to construct a network and then defend it from expert penetration testers.



Students from Thomas Jefferson High School in Fairfax County, VA participated in the Preliminary Round in the fall.

The first portion of the contest was actually held in the fall of 2016 as an introduction to the program. The qualifying round and finals will be held during spring semester with the following breakdown:

On-line qualifying round: March 18th - April 1st

This will be a virtual contest with no hints and no additional educational materials will be provided. The top 7 teams from this event will be invited to campus for the finals, and all of the members of these teams will receive a Raspberry Pi Kit (courtesy of a grant from the National Security Agency).

On-campus finals: April 29th

A one day, on campus event. Part of this contest will include teams bringing their Raspberry Pie Kits, creating an Internet of Things, and defending their network.

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

CAPTURE THE FLAG

HOSTED BY RADFORD UNIVERSITY

RADFORD UNIVERSITY TO HOST BLUE RIDGE HIGHLANDS REGIONAL SCIENCE FAIR

The Blue Ridge Highlands Regional Science Fair will be held Friday, March 3 and Saturday, March 4, 2017 in Peters Gym at Radford University. Thousands of students are eligible to participate as the fair serves 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.

In addition to thousands of dollars in cash and prizes, students that win the two top overall projects at the Blue Ridge Highlands Regional Science Fair will get an expense paid trip, along with their teachers, to the International Science and Engineering Fair (ISEF) in Los Angeles in May.

More information about the science fair can be found at http://sciencefair.asp.radford.edu/ . This website also gives the rules and regulations for each science fair project. Our science fair follows the ISEF rules for all science fair projects. All projects must be submitted for approval prior to exhibition at the fair, with a registration form and abstract, no later than February 17, 2017.

If you have any questions about student projects or if you have projects that require pre-approval, please email sciencefair@radford.edu. Co-Directors for the event are Dr. Christine Hermann and Dr. Kimberly Lane. Mr. Christopher Bibeau serves as SRC Chair.

RADFORD UNIVERSITY CHAPTER OF THE AMERICAN CHEMICAL SOCIETY RECEIVES AWARD

The American Chemical Society student chapter at Radford University has been selected to receive a "Commendable Award" for activities conducted in the most recent academic year. More than 400 chapters of the ACS nationwide submit reports of their activities, but fewer than 25% receive the Commendable Award annually.

The national President, Dr. Donna Nelson, specifically noted the support of chapter advisors Dr. Cindy Burkhardt and Dr. Kimberly Lane as crucial to the success of the organization.

CSAT STEM CLUB TO SPONSOR TRIP TO MUSEUMS AND ZOO IN WSHINGTON DC

The STEM club of the College of Science and Technology is planning a trip to visit several Smithsonian Institution museums as well as the National Zoo on March 25. The visit will include excursions to the Air and Space museum and the Natural History museum on the National Mall. Tickets for the one-day trip will be $20 per person. For more information, please contact any STEM club member or Club advisor David Horton (rhorton@radford.edu)

Image from the Smithsonian Institution.

OPEN HOUSE FOR PROSEPECTIVE CSAT STUDENTS TO BE HELD FEBRUARY 25

Prospective students are invited to campus for a day-long open house on February 25th in conjunction with the Highlander Day admissions event. Guests will have the opportunity to learn more about the Departments within the College of Science and Technology, meet with faculty and students, and tour the facilities. Interested parties can learn more and register for the event at www.radford.edu/csatopenhouse

RADFORD UNIVERSITY
SCIENCE AND TECHNOLOGY OPEN HOUSE

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 and participants who sign up by February 16 can save $35.

For more information, please visit:

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

SUMMER BRIDGE APPLICATIONS REQUESTED BY THE COLLEGE OF SCIENCE AND TECHNOLOGY

The Radford University College of Science and Technology Summer Bridge STEM program is a week-long residential experience for rising sophomore, junior, and senior high school girls interested in science, technology, and mathematics. The 2017 edition of the program will take place from Sunday, July 9 – Friday, July 14, 2017.

Applications are now being accepted for the 2017 program. More information is available at:

http://www.radford.edu/content/csat/home/summer-bridge.html