

## ***FROM THE DEAN'S DESK – SEPTEMBER 6, 2019***

THE RADFORD UNIVERSITY ARTIS COLLEGE OF SCIENCE AND TECHNOLOGY NEWSLETTER



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## **RADFORD UNIVERSITY FACULTY RECEIVE AWARD TO STUDY IMPACTS ON STREAMS FOLLOWING PIPELINE INSTALLATION**

Radford University is the recipient of a 2019 Jeffress Trust Award that will support faculty and students in exploring the impact of pipeline construction on streams in Southwest Virginia. Tara Pelletier, Ph.D., and Jamie Lau, Ph.D., assistant professors in the Department of Biology, along with Kristina Stefaniak, Ph.D., assistant professor in the Department of Chemistry, received a one year, \$120,000 award to support innovative interdisciplinary strategies to integrate computational and quantitative scientific methods.

The award supports research to quantify the habitat, water chemistry, insect diversity, and environmental DNA in the flowing water of stream sites before and after the installation of the natural gas pipeline in Roanoke County. From these data, a predictive model using a machine learning algorithm will be built to provide risk-assessment profiles and post-modification restoration plans for future projects that require extreme habitat modification, such as natural gas pipeline implementation.

Drs. Stefaniak, Pelletier, and Lau stated “We are excited about this research project because we are using our expertise from three fields to capture the impact of the pipeline on our local streams.”

The research is being performed in both the Department of Biology and the Department of Chemistry, which gives our students a unique experience to work together on an interdisciplinary project.

“This great opportunity also allows us and our students to work closely with the community and local landowners” recalled the project team members.

This award provides financial support for four undergraduate students during the semester and over the summer. The students will gain experience on sampling techniques in the field as well learning laboratory techniques to analyze the water chemistry, insect diversity, and environmental DNA.

The Jeffress Memorial Trust was founded in 1981 by Robert M. Jeffress in memory of his parents and is guided by its mission to benefit the people of Virginia and their research in chemical, medical or other scientific fields. The Jeffress Trust awards support high impact, innovative one-year projects that integrate computational and quantitative scientific methodologies across a broad range of scientific disciplines.



*Kristina Stefaniak, Ph.D., assistant professor in the Department of Chemistry, Tara Pelletier, Ph.D., and Jamie Lau, Ph.D., assistant professors in the Department of Biology.*

## FORENSIC SCIENCE INSTITUTE (RUFESI) HOSTS ADVANCED FORENSIC TRAINING FOR THE FBI



***FBI Training included bone identification in the classroom and in the field.***

The Artis College of Science and Technology's Forensic Science Institute (RUFESI) hosted advanced forensic training for the FBI on RU's campus July 29 - 31. RUFESI Co-Directors Drs. Cliff and Donna Boyd taught 14 members of the FBI Evidence Response Team from Richmond in the three-day session, which included classroom instruction on identification and analysis of human remains and the application of forensic anthropology casework to death investigations. Selu field exercises focused on search, recovery, and mapping of human remains from mock crime scenes.

Dr. Donna Boyd noted that it was a joy teaching these already quite knowledgeable professionals, who approached the training opportunity with great eagerness to learn. The training experience also served to further develop the collaborative working relationship between the FBI and the RUFESI already established through prior work together on forensic scenes across the Commonwealth.

FBI Agents learned proper techniques for identification, mapping and recovery of forensic scenes. They engaged in hands-on laboratory exercises for identifying and differentiating human from non-human remains and establishing the biological profile and identity of human

remains in a death investigation. Agents were also trained to evaluate and differentiate antemortem, perimortem, and postmortem processes affecting human decedents using RUFESI instrumentation and collections. Senior Team Leader Special Agent Cameron Fricks wrote about the training: "Our team feels privileged and excited for the opportunity to learn from [the FSI]."

"The FBI training was one of the most rewarding experiences that I've had at Radford so far," noted Aubree Marshall, a senior RU Anthropology major and Teaching Assistant for the course. She received advice and encouragement from the agents regarding FBI Internship applications. She said about the experience: "It was amazing being able to share my knowledge of osteology and anthropology that I've



***FBI Evidence Response Team members training with the Radford University Forensic Science Institute at Selu Conservancy.***





***FBI Agents working at a mock dig site during training.***

gained at Radford University with these professionals. I also had the chance to learn more about the FBI, which opened my eyes to several potential opportunities that I have for the future.”

The Radford University Forensic Science Institute (RUFISI) is an interdisciplinary institute whose goal is to promote and support forensic science education, research, and public service. The institute faculty are comprised of specialists in Forensic Anthropology and Forensic Archaeology. The FSI mission is to serve as a center for innovative interdisciplinary forensic science research and to provide, with integrity, the highest quality educational training, consultation, and public service in the forensic sciences. Its faculty also provide objective and unbiased court testimony in regard to medicolegal death cases in the Commonwealth and beyond.

Learn more at

<https://www.radford.edu/content/csat/home/forensic-science.html>

## **RADFORD UNIVERSITY DEPARTMENT OF CHEMISTRY DEVELOPS STUDENT DEGREE PATHWAY WITH LORD FAIRFAX COMMUNITY COLLEGE**

In an effort to facilitate the ease of transition from a Community College to Radford University, the Department of Chemistry has helped develop a pathway to a degree with Lord Fairfax Community College and to commemorate the hard work of the members of the team, a signing ceremony was held on August 30<sup>th</sup> at LFCC in Middletown, Virginia.

"The Department of Chemistry is looking forward to working with the Lord Fairfax Community College students in completing their associates at LFCC and their bachelors at RU" stated Dr. Chris Hermann, Chair of the Radford University Department of Chemistry. "We welcome this new partnership between the two schools."



## **RADFORD UNIVERSITY SENIOR EXPERIENCE EXPLORES GLOBALIZATION THROUGH ARCHAEOLOGY DURING NATIONAL SCIENCE FOUNDATION RESEARCH EXPERIENCE**

Sadie Friend, RU Anthropological Sciences Senior and Forensic Science minor, has had a busy summer. She spent the first portion of her summer fulfilling her acceptance into the competitive NSF REU (National Science Foundation Research Experiences for Undergraduates) program “Exploring Globalization Through Archaeology,” offered through Texas State University. This field school program focused on a four week excavation of an 18th century Caribbean archaeological site on Statia (St. Eustatia) and included excavation of a sugar plantation, cemetery, and a geophysical survey of the nearby slave village. Sadie developed a research thesis during this time and collected data on-site. Weeks 5-8 were spent at the Texas State University labs processing and analyzing these data.

Of the experience, Sadie writes “The lives and stories of enslaved Africans are underrepresented (or misrepresented) in the historical record and this project is bringing the histories and stories of enslaved Africans on Statia to light. I am honored to be part of a project that allows me to uncover stories that are danger of being lost....this field school has been the most unique educational experience thus far in my academic career.”



Following her time in Texas, Sadie spent two weeks as an intern at the Cleveland Museum of Natural History, assisting with curation of the T. Wingate Todd human skeletal collection.

Finally, she, along with her mentor, Dr. Donna Boyd, made substantial progress on her SURF project: The Effects of Diabetes Mellitus on Bone: Fracture Susceptibility and Impaired Bone Formation in Forensic Analysis. They submitted an abstract to present this research at the upcoming American Academy of Forensic Sciences (AAFS) meeting in Anaheim CA next February.

## **RU-ACES LAUNCHES STUDENT ENGAGEMENT PROGRAM**

On Saturday, August 31, faculty and students gathered at Selu Conservancy for an afternoon of engaging activities and fun events to help kick off the RU-ACES program within the Artis College of Science and Technology.

The Radford University Artis College Explorers of Science (RU-ACES) program is designed to provide new students a chance to build a social support structure with students from their own and other majors to help make that critical first year of college transition successful. The 2019-2020 academic year is the inaugural year of this program and it currently includes students from Biology, Chemistry, Geology and Physics. This new program is an extension of efforts already underway in the Artis College of Science and Technology associated with the REALISE (REALising Inclusive Science Excellence) grant from the Howard Hughes Medical Institute.

Dr. Brett Taylor, Chair of the Department of Physics and part of the RU-ACES planning team stated “The event did exactly what we were hoping for in terms of getting the students to have fun and to bond with each other.” He added “The students all exchanged their phone numbers, Snapchat IDs, Instagram IDs, etc and were talking about doing yoga together, going to the gym together, and other outside non-class related activities.”



***Students and Artis College Faculty participated in low ropes courses and other team-building activities.***

Dr. Sarah Kennedy, Assistant Professor of Chemistry and an additional member of the planning team recalled “ This initiative came from the five of us going to a CUR Broadening Participation institute in March 2019. We’ve collaborated together to have the inaugural RU-ACES event and plan to have follow up events which will likely be tied to the REALISE Students events because the goal for both programs is the same: Create a sense of belonging and community among science majors at RU.

The RU-ACES Team is made up from members from Biology, Chemistry, Geology and Physics:

Dr. Tara Pelletier - Department of Biology

Dr. Sarah Kennedy - Department of Chemistry

Dr. Kristina Stefaniak - Department of Chemistry

Dr. Brett Taylor - Department of Physics

Dr. Jon Tso - Department of Geology

## ARTIS COLLEGE CALENDAR

### SEPTEMBER

- 6
  - Fun time with the Faculty on First Fridays at Four o'clock (liquid nitrogen ice cream)
  - Sponsored by the Chemistry Department
  - 4p – 5:30p – CS Main Street Level
- 12
  - Student/Faculty Mixer
  - Sponsored by REALISE
  - 5p-7p – CS MAIN STREET LEVEL
- 19
  - Highlander Discovery Institute "Exploring the Nexus of Politics and Society" Panel
  - Sponsored by the Office of the President
  - 7p – Bondurant Auditorium, Preston Hall
- 20 – 22 - Family Weekend

### OCTOBER

- 11
  - Fall Break
- 11
  - Radford International Street Faire
  - Sponsored by Radford Department of Tourism
  - 5p-9p – Downtown Radford
- 12
  - Radford Highlanders Festival
  - Sponsored by Radford University and the City of Radford University
  - 8a-6p – Moffett Lawn, RU Campus
- 25
  - Artis College Advisory Council Meeting
  - Sponsored by the Office of the Dean
  - 2:30p – Location TBD
- 25
  - Artis College Alumni Panel
  - Sponsored by the Artis College Advisory Council
  - 4pm – CS Main Street Level

### NOVEMBER

- 23
  - Thanksgiving Break

### DECEMBER

- 2
  - Classes resume following Thanksgiving
- 14
  - Winter Commencement