FROM THE DEAN’S DESK – APRIL 18, 2017
THE RADFORD UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY NEWSLETTER

Radford University students from the Department of Information Technology were invited to the Governor’s Mansion in Richmond on Friday, April 14th to celebrate their outstanding finish at the Virginia Cyber Fusion Cup.

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On Friday, April 14, members of the Radford University Cyber Defense Club traveled with Dr. Darrell Parsons to the Virginia Governor’s Mansion at the invitation of the Honorable Terry McAuliffe. Having distinguished themselves at the Virginia Cyber Fusion Cup competition in February, the team received the invitation to meet the Governor and to celebrate their outstanding second place finish in the inaugural event held February 25 at Virginia Military Institute.

The Highlanders competed against eight schools from throughout the Commonwealth, narrowly losing to Virginia Tech in the last 15 minutes of the competition and missing the top spot by just .055 percent (60 points out of 1,100).

Team members, coached by Associate Professor of Computer Science Prem Uppuluri, included Jacob Walters, Mehdi Himmiche, Harry Frank, Joey Burt, Michael Basala and Sean Anderson. Joining the participating team members were students Ben Adams, Carlie Addicks, Danielle Pompa and Matthew Wallace who served as observers to prepare for future competitions.
GEOLOGY STUDENTS AND FACULTY EXPLORE ANCIENT SEA FLOOR IN KENTUCKY

On the weekend of April 8, 2017, members of the Radford University Geological Society, along with three faculty members of the Department of Geology, took advantage of springtime weather to venture into central Kentucky to experience geology quite different than that of Radford and southwest Virginia.

Ancient rocks with hundred-million-old fossils abound in central Kentucky, once the site of a shallow tropical sea, provide geologists with a look at an ancient seafloor that existed millions of years before the formation of the Appalachian Mountains in eastern North America.

The club members, including many majors in geology, were able to easily collect fossil specimens of ancient ancestors to the modern sea life including snails, corals, and of the lesser known modern shellfish brachiopods and cephalopods. A short side-trip to another site in a nearby county provided for the collection of geodes - hard, hollow rocks whose central cavities are lined with crystals of the mineral quartz. These unique rocks are prized by collectors.

The event was coordinated by Associate Professor of Geology Dr. Steve Lenhart, who has facilitated and led this type of trip for many years for the Department and students. Dr. Lenhart will be retiring at the end of the academic year and the event was a perfect ending to a fruitful year of geological studies as well as an opportunity to gain the wisdom and guidance from his experience once more.

Dr. Lenhart stated “It is said that ‘the best geologists are those who have seen the most rocks.’” He added “Venturing outside southwest Virginia to study rocks unlike those found here only broadens the experience and knowledge of students of geology and provides them the opportunity to apply what they have already learned, but have never actually seen.”
RUSECURE CAPTURE THE FLAG FINALISTS ANNOUNCED

What began with more than 250 students representing 63 teams from 28 high schools and three community colleges is down to a superb seven teams consisting of 33 participants in one of the largest and most challenging capture the flag competitions in Virginia. The finalists will be on campus April 29th to compete for the championship in a day-long round of activities.

Sponsored by the Department of Information Technology, the RUSecure CTF Qualifying Round concluded on April 1 and consisted of 59 capture the flag style challenges including Windows, Linux, Reconnaissance, Networking, Forensics, and Cryptography. Of those 59 challenges, only 10 remained unsolved by the end of the two-week virtual contest and two additional challenges had been solved by only one team each.

The finalists are:

<table>
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<tr>
<th>School</th>
<th>Team Name</th>
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<tbody>
<tr>
<td>Deep Run High School</td>
<td>HTCPCP://</td>
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<tr>
<td>Danville Community College</td>
<td>Cyber Knights</td>
</tr>
<tr>
<td>Thomas Jefferson High School for Science and Technology</td>
<td>hungry hippos</td>
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<tr>
<td>Lord Fairfax Community College</td>
<td>Crashers</td>
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<tr>
<td>Lake Braddock Secondary School</td>
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<td>Poolesville High School / Thomas Jefferson High School for Science and Technology</td>
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<td>Hayfield Secondary School</td>
<td>NEXUS HAWKS</td>
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The top scoring team earned 19,100 of the roughly 26,000 points available. The contest was very tight and very competitive with the top seven teams separated by only 1,200 points and the lead changing hands many times throughout. In fact, the top thirteen teams were separated by only 5,000 points. Of the 63 teams registered for the contest, 55 of them solved at least one challenge.

This event challenges high school students to perform at extraordinary levels. Managed by Radford University Information Technology faculty and students, the contest is part of an overall effort to improve cyber security literacy among K-12 students across the Commonwealth. Co-Chairs for the event are Dr. Joe Chase and Dr. Prem Uppuluri.
The Radford University Student Engagement Forum is coming up this week with outstanding presentations from students across the seven colleges on campus. From a CSAT perspective, there are several highlights including Biology, Chemistry, Geospatial Science, Geology, Physics, Anthropological Sciences, and Forensic Science.

On Wednesday, April 19th from 3-4pm, Ms. Nancy Artis will present a career evolution seminar that will help students gain a greater understanding of the working world, its challenges and opportunities. This event, sponsored by the Radford University chapter of Sigma Xi and the Office of Undergraduate Research (OURS), will take place in the Center for the Sciences room M073.

The forum schedule includes:

**Tuesday, April 18**
Production Technology Showcase, CS M073, 6:30-8 p.m.

**Wednesday, April 19**
Advanced Research in Forensic Science, Heth 022, 8-11:45a.m.
Keynote Address Nancy Artis, CS M073, 3-3:50 p.m.
Biology Oral Session, CS M073, 4:20-5:30 p.m.
Chemistry Oral Session, CS M073, 5:30-6:10 p.m.
Science Oral Session, CS M073, 6:10-7:10 p.m.
Geospatial/Geology/Physics Poster Session, CS Lobby, 1-2:30 p.m.
Chemistry Poster Session, CS Lobby, 4-5:15 p.m.
Biotransformers, CS Lobby, 5:30-6:45 p.m.
Biology Poster Session I, CS Lobby, 5:30-6:45 p.m.
Biology Poster Session II, CS Lobby, 7-8:15 p.m.

**Thursday, April 20**
Primate Behavior Research, Heth 022, 10 a.m.-noon

The full schedule is available at [http://www.radford.edu/content/ours/home/forum.html](http://www.radford.edu/content/ours/home/forum.html)
On Friday, April 21, Dr. Brad Conrad, National Director of the Society of Physics Students, will meet with members of the Radford University chapter of SPS for a presentation regarding careers with a physics degree and to induct four new members to the Sigma Pi Sigma honor society. The event will take place at the Radford University Planetarium at 4pm. During the day, Dr. Conrad will tour the Physics department, meet with faculty and students, and offer ideas for future innovation within the program.

Dr. Conrad is originally from the Washington DC area. He earned his B.S. in Physics and a minor in Modern World History from Rochester Institute of Technology (RIT) in NY. While there, Dr. Conrad was president of his local SPS chapter and a SPS National Council member, Zone 2. He completed his Ph.D. in Experimental Condensed Matter Physics at the University of Maryland College Park where he studied organic semiconductors and surface physics. After a National Research Council fellowship at the National Institute of Standards and Technology where he worked on organic crystals, Dr. Conrad became an Associate Professor at Appalachian State University in Boone, NC. He has been an active volunteer at SPS/APS (American Physical Society) undergraduate research sessions, supported his local SPS chapters, and served on several APS task forces focused on graduate students and early career physicists.

Physics and Astronomy students have a wealth of career options available to them. This talk will highlight both the statistics and practical skills students need to fully take advantage of their opportunities. This talk aims, in part, to shed light on the obstacles, for both students and programs. We will highlight the broad scope of career opportunities available for those equipped with a bachelor's degree in physics and learn at least one skill that can help. Dr. Conrad’s presentation will attempt to outline how students can become prepared for after graduation and how SPS can develop valuable resources for students, faculty mentors, and department leaders.

Learn more about the Society of Physics Students at [www.spsnational.org](http://www.spsnational.org)
MATH DEPARTMENT TO HOLD SEMINAR AND COMPETITION FOR STUDENTS AND FACULTY

The Department of Mathematics and Statistics will host a research seminar on Wednesday, April 19 in Walker Hall 296 at 4pm. The program will feature Camron Withrow, a 2011 Radford University graduate who is now serving in the Department of Mathematics at Virginia Tech.

His topic, The moment graph for Bott-Samelson varieties, where he will discuss what a “moment graph” is and how to construct one.

An abstract for his presentation states “For varieties equipped with a group action, the moment graph describes the fixed points and stable curves in your space. This construction is important for computing certain invariants for the variety, such as the equivariant and quantum cohomologies. In this talk, we will describe how to construct the moment graph for Bott-Samelson varieties, and compute some examples.”

Following Camron’s presentation, a math competition between students and faculty will take place at 5pm. The program, which has been an annual event for the Department for several years, is a fun contest to see how quickly and accurately each group can complete a series of math problems. The event will also be in Walker Hall 295.
NEW FUNDRAISING OPPORTUNITY LAUNCHED FOR CSAT SUMMER BRIDGE PROGRAM

Radford University has SPRING FEVER! That is the name of a recently launched competition utilizing crowdsourced fundraising to support projects around the Radford University Community. The program selected to launch to campaign for the College of Science and Technology is the Summer Bridge, a week-long, residential, immersive STEM experience for high school age women.

The Summer Bridge program, which has been in existence for over a decade, features the work of CSAT faculty and students as they help participants interested in STEM explore the opportunities available to them at the academic and career levels.

Through the fundraising competition, a goal of $10,000 has been established and CSAT is competing against the other six Radford University Colleges as well as athletics to see who can reach their goal first.

The 2017 edition of Summer Bridge has seen a record number of applications and any additional funds raised by this campaign will help support students who would otherwise not be able to attend.

Learn more about the campaign at [http://c-fund.us/be9](http://c-fund.us/be9)

The Summer Bridge program will take place at Radford University from July 9th – 14th.
The Radford University Department of Chemistry hosted the Annual Undergraduate and High School poster session at the Center for the Sciences on Monday, April 10.

The event, sponsored by the Virginia Blue Ridge Section of the American Chemical Society, featured the work of many RU students along with their peers from institutions across the region.
RADFORD UNIVERSITY WILDLIFE SOCIETY HOSTS QUAIL PRESENTATION

On Friday, April 14, The student chapters of The Wildlife Society from Radford University and Virginia Tech co-sponsored a presentation of the movie "Bobwhites on the Brink" at the Radford University Planetarium.

The film was followed by a presentation from Private Lands Biologists from the state and from local landowners active in bobwhite quail restoration.

About 50 people attended the program where the goal was to educate the students and the general public about the plight of the bobwhite quail - a species that is a target for many state- and federally-funded restoration efforts.

STUDENTS COMPLETE PRESCRIBED BURN AT SELU CONSERVANCY

Students in Dr. Powers’ Fire Ecology course planned and participated in a prescribed burn of an 8-acre grassland at the Selu Conservancy. Members of the RU Administration, the Virginia Department of Forestry, and RU Department of Biology all contributed to this successful team.

The goals of the prescribed fire were to 1) continue the restoration of this grassland, in which native, warm-season grasses had been planted a decade ago; 2) reduce the fuel load and therefore decrease the chances of any harm by a wildfire, and 3) provide an educational experience for the 12 students participating.

The fire burned for approximately 1.5-2 hours before it was full extinguished. On-site assessment suggested a successful burn with all of the immediate goals met.

Stories by Karen Powers