

## From the Dean's Desk - - February 28, 2014



In this edition:

**PAGE 2 – NORTH TO ALASKA: THE JOURNEY BEGINS**

**PAGE 3 – RU CSAT OPEN HOUSE**

**PAGE 5 - RU SENIOR BIOLOGY MAJOR EARNS NATIONAL FELLOWSHIP**

**PAGE 6 - BIOLOGY ALUMNUS JUSTIN BOWER TO DISCUSS THE BUTTNERNUT TREE IN A LECTURE SPONSORED BY TRI-BETA**

**PAGE 6 – PROFESSOR BOB SHEEHY AWARDED NSF GRANT**

**PAGE 7 - RADFORD UNIVERSITY ALUMNUS CHRIS SUCHAN IS FEATURED IN KANSAS CITY CONTEST**

**PAGE 7 - MUSEUM OF THE EARTH SCIENCES LECTURE**

**PAGE 8 - RADFORD UNIVERSITY TO HOST SUMMER BRIDGE PROGRAM JULY 13-18**

**PAGE 9 - COLLEGE TO HOST SUPERMACC HIGH SCHOOL ACADEMIC TOURNAMENT**

**PAGE 9 - RU COLLEGE OF SCIENCE AND TECHNOLOGY TO HOST REGIONAL SCIENCE FAIR**

**PAGE 10 - COLLEGE TO HOST SCIENCE EXPLORATION DAY ON SATURDAY, MARCH 29, 2014**

**PAGE 11 - CSAT STEM CLUB**

**PAGE 11 – NEWS AND NOTES**

## NORTH TO ALASKA: THE JOURNEY BEGINS

Next week, Radford University students and faculty will be enjoying the weather on the coast. Not Daytona Beach for spring break, but the -25 degrees Celsius temperatures at the Chukchi Sea near Barrow, Alaska as a team of eighteen members of the RU Community will travel north to conduct research on arctic ice.

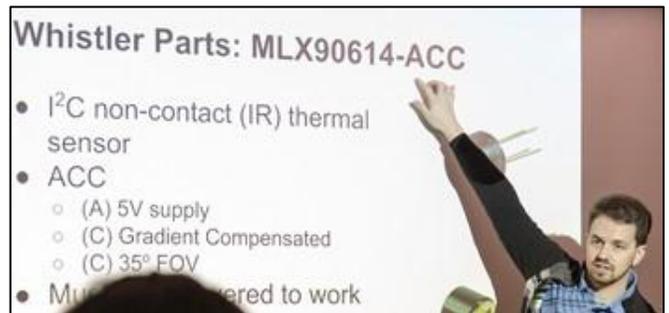


*Rhett Herman, professor of physics, explains the different temperature readings students will see on the ice during a Saturday class prep session prior to the trip.*

fairly constant and warmer than it is at the top. The difference between the two temperatures is largely based on the thickness of the ice. If the concept pans out based on this research trip, a formula could be derived to determine ice thickness by measuring temperature on a large scale, perhaps by a plane or drone flying over the ice sheet with temperature gathering sensors.

The students are participants in the Artic Geophysics 450 class and are being introduced to this wonderful active research opportunity with hands-on participation with equipment and modeling software. During the preparatory classes in January, students were introduced to the tools they will be using in Alaska and practiced capturing data. One of the tools that will be deployed is the thermal sensor unit nicknamed "the Whistler" by its developer, Dan Blake. The device is based on the popular arduino microprocessor platform and provided an opportunity for students to learn how to utilize it, but also how to construct some of the technology within the device. Dan is both an alumnus of Radford University as well as an alumnus of the research expeditions that began in 2003 with a journey to the North Pole led by Dr. Herman.

The journey for this team began a few weeks ago with preparatory sessions on January 25. During those first three Saturdays of the spring 2014 semester, students were introduced to the project by RU Physics Professor Dr. Rhett Herman and RU Alumnus, Instructor of Physics, and Southwest Virginia Governor's School faculty member Dan Blake. Essentially, while we can measure the size of the polar ice cap by length and width, there are no great measurements for the thickness of the ice. Dr. Herman is working from the theory that the temperature at the bottom of the ice sheet, where it becomes liquid, is



*Dan Blake '05, an instructor of physics at Radford University and Southwest Virginia Governor's School as well as a veteran of the polar ice research trips, goes through the details of the equipment used for thermal data collection during a Saturday session in preparation for the trip to Alaska.*

Other tools that will be employed during the trip are GPS devices, infrared sensors and an OhmMapper array that will measure the resistivity of the ice based on the signal produced by the whistler. All of these devices were tested during the preparatory classes and data was collected on the RU campus outside Reed Hall. The sample data was then fed into the software program that the team will be using in Barrow.



*The research group gathers outside Reed Hall during a Saturday class prep session prior to the trip to learn about the equipment they will be using in Alaska.*

Members of the research team include RU undergraduate physics and geology students and faculty, students and faculty from the Southwest Virginia Governor's School of Math, Science and Technology (SWVGS) and student teachers from RU's School of Teacher Education and Leadership. Various participants will be on site in Alaska from March 1 – 14.

One of the most exciting elements of this "Arctic Adventure" for those who will not be traveling to Barrow is the interactive participation of the participants online.

From Alaska, two student teachers, led by Instructor of Physical Science Mythianne Shelton, will be using Skype technology to provide live science lessons to K-12 classrooms in Southwest Virginia, North Carolina and Maryland on the research and the challenge of science. The student teachers will also be doing research on the impact of video conferencing on elementary student interest in science as a topic.

Outside the classroom, anyone interested can follow the trip via a new website created exclusively for the expedition: [www.radford.edu/alaska](http://www.radford.edu/alaska). Accompanying the expedition will be Jaslyn Gilbert, multi-media producer for the RU Office of Web Strategy and Interactive Media, who will chronicle the expedition's research activities and provide daily video and photography that will be posted on the [expedition's website](#). In addition, students are providing their thoughts about the trip via the RU CSAT Facebook page, which will also contain additional information about the participants and their activities.



## COLLEGE OF SCIENCE AND TECHNOLOGY HOSTS OPEN HOUSE FOR PROSPECTIVE STUDENTS

The College of Science and Technology hosted an open house for prospective students to the college on Saturday, Feb. 22 from 1:30 - 4:45 p.m. on campus.

The event included a presentation by RU alumnus Seth Peery, question and answer session with college faculty, tours of the Museum of the Earth Sciences and the RU Greenhouse, a computer science demo about robotics and Java, and a planetarium show. RU representatives from admissions, career services, study abroad and the Honors Academy also answered questions and spoke with students about the university.



In his opening remarks, Mr. Peery, who is the Senior GIS Architect and Interim Director of Geospatial Information at Virginia Tech, shared his Radford University experience with the individuals gathered in McGuffey 203. He recalled his open house prior to coming to RU as a student and what an exciting time it was in his life. "One of the main things that my time at RU taught me was how to learn" recalled Mr. Peery. "I literally didn't know what I didn't know."

Mr. Peery, who is a 2003 Radford graduate with degrees in both political science and computer science as well as minors in mathematics and economics, also advised the group to be agents of change in their own lives, as they explore what the world and Radford University have to offer. "I changed my major five times as I walked the winding path that became my road to success" he said. "I was doing a lot of exploring. The changes allowed me to find a great fit, but also required a bit more than from the average student as my semesters were quite full with 18 credits many times, sometimes going as high as 21 or 22."

Mr. Peery went on to state that he has learned that Radford has everything you need to find success and to go anywhere you want to go. He noted that it takes a lot of hard work to be successful in college and that "genius is neither required nor is it sufficient for success."



Students spent the rest of the day discovering different programs within the college and visiting with faculty who were gathered to help guide them. Members of the CSAT STEM Club also offered advice and answered questions about the programs and opportunities available for students in the College of Science and Technology.

*Dean of the College of Science and Technology, Dr. Orion Rogers with keynote speaker Mr. Seth Peery at the 2014 Open House.*

## RU SENIOR BIOLOGY MAJOR EARNS NATIONAL FELLOWSHIP



*Dan Metz is a national Ecological Society of America 2014 SEEDS Fellow.*

Dan Metz, a Radford University senior biology major from Snowville, Va., has won one of three national fellowships, valued at \$12,000, from the Ecological Society of America (ESA).

"It is an amazing opportunity for research and will be a foundation for the rest of my career." said Dan, who is currently consulting with the ESA to select a mentor from the organization's membership that represents approximately 10,000 American and international scientists.

In conjunction with the mentor, Dan will write a research proposal, conduct original ecological research, analyze results and

present at the 2015 ESA annual meeting.

The ESA is an organization that promotes ecological science through communication among ecologists, the scientific community and relevant policy-makers. The ESA raises public awareness of the importance of ecological science and ensures its appropriate use in environmental decision making.

According to the ESA, the Strategies For Ecology Education, Diversity And Sustainability (SEEDS) Undergraduate Research Fellowship program is designed to advance the work of outstanding students in the field of ecology. SEEDS Fellows receive ESA support through leadership development, mentoring and guidance on a project of their choosing. Fellowship awards include a \$6,000 stipend, \$3,000 support for research, travel and housing expenses and travel expenses to upcoming leadership and annual meetings events.

Dan's fellowship will run from March 2014 through August 2015 and he is considering three different approaches. He will either explore parasite biology locally, in an Eastern urban setting or in the Canadian province of Manitoba.

"I tend to be curious about systems that have not been well explored," he said. "I love parasite biology because of the incredibly complex relationship between the host and the parasite."

Dan has been working in the Aquatic Biology Lab with Associate Professor Jeremy Wojdak to research a group of trematode parasite species that live as larvae in snails in local ponds and streams and ultimately infect a wide spectrum of wildlife species, including amphibians, mammals and birds.

"Dan has an insatiable curiosity for science. He gathers new skills quickly, from molecular biology techniques to scanning electron microscopy, because he is motivated to find answers to pressing research questions," said Dr. Wojdak, Dan's research mentor on the project that is featured [here](#). "The ESA SEEDS Fellowship will provide Dan with a great mix of financial and mentoring resources to help him make that very challenging transition from being a consumer of knowledge to being a producer of knowledge."

## **BIOLOGY ALUMNUS JUSTIN BOWER TO DISCUSS THE BUTTERNUT TREE IN A LECTURE SPONSORED BY TRI-BETA**

On Friday, February 28 at noon in Young Hall 302, RU Alumnus Justin Bower will be presenting some of the findings from his research on the Butternut Tree in an event sponsored by the Biology Honor Society Beta Beta Beta. The Butternut tree in Maryland is currently being decimated by a lethal fungus and Justin's project examines the crown conditions and environmental factors that influence the severity of the disease. He is hopeful that his findings from this research will aid forest managers and professionals in identifying and promoting better butternut regeneration. In addition to his research presentation, Justin will also discuss his post-graduate educational experience at Frostburg State University.



## **PROFESSOR BOB SHEEHY AWARDED NSF GRANT**



The SUMS4BIO project, which is a collaboration between the Biology and Mathematics and Statistics departments at Radford University, spawned a National Science Foundation Research Coordination Networks – Undergraduate Biology Education grant (RCN-UBE grant). Bob Sheehy along with Co-PI's Drew LaMar (William and Mary), Carrie Diaz Eaton (Unity College) and DorothyBelle Poli and Anil Shende (Roanoke College) received this \$50,000 grant to fund an "incubator project" with the goal of creating a central online hub for biologists and mathematicians to collaborate to improve students' understanding of quantitative reasoning. While online resources such as repositories of classroom

materials exist to help instructors modify their curricula, there is no central location where instructors on both sides of the aisle (biology and mathematics) can come together to work on interdisciplinary teaching. QUBES (Quantitative Undergraduate Biology Education and Synthesis) will be a streamlined educational repository with a direct link to a Facebook-like social interface, which would allow individuals to discuss different teaching materials, pedagogies and philosophies in an efficient manner. – Story by Karen Powers

## RADFORD UNIVERSITY ALUMNUS CHRIS SUCHAN IS FEATURED IN KANSAS CITY CHARITY CONTEST

Who is Kansas City's favorite weathercaster? That was the question asked over the last few weeks by the website [www.weatherist.com](http://www.weatherist.com) as locals voted for their favorite forecaster. Radford University was well represented in the race by Chris Suchan, a 1997 graduate who graduated with a degree in Earth and Space Science and a minor in Geology.



Photo courtesy KCTV5

Following his time at RU, Chris continued his education at Mississippi State University before beginning his television career in Harrisonburg, Virginia. Following stints in Charlotte, NC and Florida, Chris recently moved to Kansas City and KCTV5 where he is serving as the Chief Meteorologist. He holds the coveted CBM certification from the American Meteorological Society as well as the NWA seal issued by the National Weather Association.

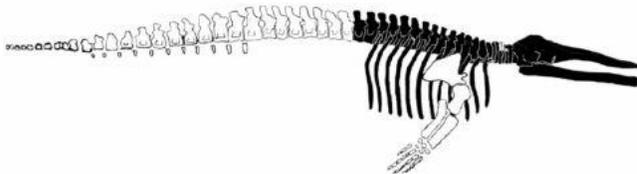
With more than 14,000 votes cast in the contest, Chris garnered 24% of the vote and second place among 17 participants. To learn more about Chris, please visit <http://www.kctv5.com/story/15938031/chief-meteorologist-chris-suchan>

## MUSEUM OF THE EARTH SCIENCES LECTURE

Tuesday evening, March 4th at 7:00 p.m. in the Hurlburt Auditorium is our next Museum of the Earth Sciences public lecture.

Dr. Butch Dooley, Paleontology Curator of the Virginia Museum of Natural History, will be speaking on "Reconstructing Buttercup: From scraps of bone, to a fossil whale".

Buttercup, believed to be a baby whale *Diorocetus hiatus*, was discovered in Carmel Church Quarry in Caroline County Virginia, just north of Richmond in 2011. Scientists at The Virginia Museum of Natural History have been revisiting the site and reconstructing Buttercup over the past three years. Rose Neikirk, an RU senior majoring in biology with a double minor in geology and chemistry, was an intern with the Museum last summer and worked with these fossils. "These whales were about 14 million years old and I spent several weeks examining individual vertebra to see if there was evidence of scavenging" Rose remembers. "Once I had examined more than 300 bones I wrote a paper comparing my findings to another, similar quarry in California, called Sharktooth Hill. I was able to show that Carmel Church has a good deal more evidence of scavengers than Sharktooth Hill." The evidence uncovered help paleontologists understand the ecosystem that evolved in that area utilizing the whale carcass.



All MES Public Lectures are free and open to the university community and to the general public.

*Diorocetus hiatus* picture from:

<http://www.palaeocritti.com/by-group/eutheria/cetacea/mysticeti/diorocetus>

## **RADFORD UNIVERSITY TO HOST SUMMER BRIDGE PROGRAM JULY 13-18**

The Radford University College of Science and Technology Summer Bridge program is a week-long residential experience for rising sophomore, junior, and senior high school girls interested in science, technology, and mathematics. The 2014 edition of the program will take place from Sunday, July 13 – Friday, July 18, 2014.

Thanks to many generous donors and sponsors of the program, full scholarships will be awarded competitively to participants. The scholarships covered all costs of the program.

Through classroom lessons, laboratory experiments, and field experiences, Radford University professors drew students in to the wonders of:



Space Exploration—create a Martian rover

Geology—study the making of mountains

Forensic Science—combat “hackers” and analyze “crime scenes”

Genes, Molecules and Medicine - learn about the biology and chemistry applications in medicine

Environmental Science - studying habitats through examination of the environment

Participants in the program have stated that the interaction with Radford University faculty and staff has been an exceptional experience as has the residential programming. For many, it will be their introduction to a college atmosphere and campus living environment. An experienced staff of Radford University students will join the faculty and professional staff to provide a world-class program for those who attend.

Please help us connect young women interested in the sciences with this outstanding opportunity and pass this message along to those who might be interested. Thanks to support from our sponsors, we will be able to offer the program to even more budding scientists moving from 73 participants to 96.

Applications are now being accepted. To learn more, please visit:

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

### **COLLEGE TO HOST SUPERMACC HIGH SCHOOL ACADEMIC TOURNAMENT**

On Monday, March 17, the College of Science and Technology and Radford High School will host the semi-final and the final rounds of the SuperMACC high school academic tournament in the COBE Building. Close to 100 academically gifted high school students from across Southwestern Virginia will compete in areas of social studies, mathematics, science and English.

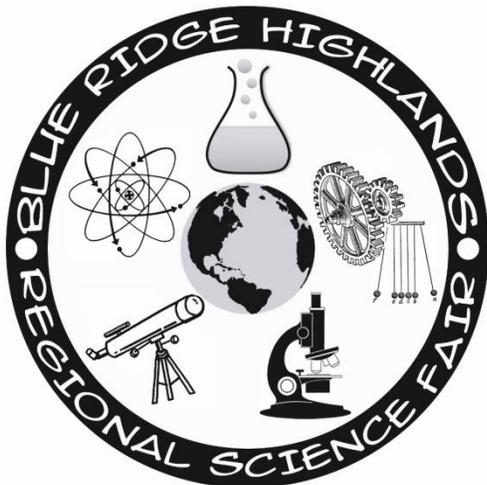
Many CSAT faculty and staff volunteer their time and expertise to help judge and facilitate the competition. CSAT STEM Club members serve as time-keepers and score-keepers during the tournament.

This is the sixth year that the College of Science and Technology and Radford High School have hosted the SuperMACC competition on campus.



### **RU COLLEGE OF SCIENCE AND TECHNOLOGY TO HOST REGIONAL SCIENCE FAIR MARCH 7 AND 8**

The College of Science and Technology and Department of Chemistry will serve as hosts for the 23rd annual Blue Ridge Highlands Regional Science Fair March 8-9 in the Peters Hall gymnasium. This will mark the fourth consecutive year of this collaboration between RU and the Science Fair. Chemistry professors Christine Hermann and Kimberly Lane are co-directors for this year's event, which is open to students from the counties of Bland, Buchanan, Carroll, Dickenson, Giles, Grayson, Lee, Montgomery, Pulaski, Russell, Scott, Smyth, Tazewell, Washington, Wise and Wythe and the cities of Bristol, Galax and Norton. Students from the Southwest Virginia Governor's School in Pulaski also participate.



The goal of the science fair is to nurture an interest in the sciences, for students of all ages. Through poster displays and oral presentations, young scientists present the results of their hard work 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. This stimulates an active interest in science and engineering in young students, provides an unparalleled experience in research and presentations, and exposes the public to the hard work these students are performing.

Students in grades six through eight compete in the junior division, and students in grades nine through 12 compete in the senior division. Over 100 participants are expected.

To learn more, please visit the Blue Ridge Regional Science Fair website at <http://sciencefair.asp.radford.edu/>.

## COLLEGE TO HOST SCIENCE EXPLORATION DAY ON SATURDAY, MARCH 29, 2014

The 2014 Science Exploration Day at Radford University, hosted by the College of Science and Technology, is open to all students in grades 6, 7, and 8. The event is designed to give students an opportunity to learn more about different areas within the sciences led by Radford University faculty, staff and students. Topics to be covered include robotics, computer animations, anthropology, cryptology and more.

Participation is free but registration is required and can be done online. Registration deadline is March 25, 2014.

NOTE: Participants must bring their packed lunch for this event, as well as paper and writing utensil.

### Schedule

Check in: 8:45 – 9:30 a.m. (McGuffey Hall, room 203)

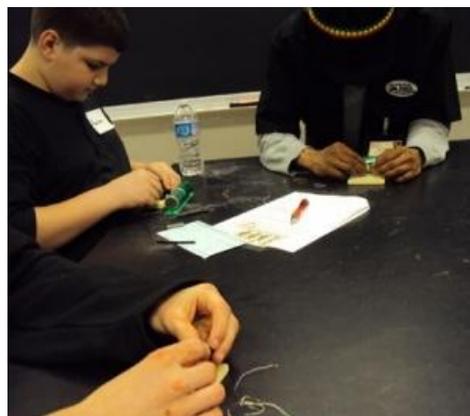
Welcome: 9:30 a.m. (McGuffey Hall, room 203)

Morning class sessions: 9:45 a.m. – noon

Lunch (students bring packed lunch): Noon – 12:40 p.m.

Afternoon class sessions: 12:40 p.m. – 2: 40 p.m.

Closing session: 2:45 – 3 p.m. (McGuffey Hall, room 203)



During the registration process, participants will select their first choice from the morning and afternoon class, or choose one of the “all-day” classes.

for more information, please visit: <http://www.radford.edu/content/csat/home/science-day.html>

## RADFORD UNIVERSITY TO HOST CAMP INVENTION JUNE 23-27



Photo by Lora Gordon

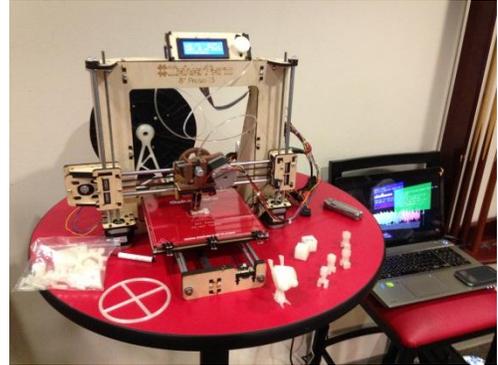
For five years, Radford University’s College of Science and Technology has offered the nationally-acclaimed Camp Invention program to children entering grades one through six in Reed and Curie Halls each June. The 2014 edition of the program is scheduled for June 23-27.

Early-bird registration is now underway. Register by March 28 and save \$25.

For more information, please visit: <http://inventnow-web.ungerboeck.com/programsearch/moreinfo.aspx?event=9762>

## CSAT STEM CLUB

The STEM club held a game night in the Bonnie Hurlburt student center on Friday, February 21. In addition to the traditional offerings of board games, billiards, and bowling, participants were able to experiment with 3-d printing and EEG brainwave based activities. The printer was built by club member Joshua Williams. Students from across the programs within the college attended.



Members of the STEM club served as hosts for the CSAT Open house on February 22 and helped to guide potential members



of the RU Community to the various activities while providing their own insight as to the Radford experience.

Several STEM Club members will be traveling to Washington DC on April 26, 2014 to participate in the third annual USA Science and Engineering Festival. The event showcases the latest innovations in science and technology. To learn more, please visit:

<http://www.usasciencefestival.org/>

## NEWS AND NOTES

RU students and faculty will be attending the Southeast Section of the Geological Society of America conference on April 10 and 11 in Blacksburg, VA. Eleven of our students are presenting or co-authoring talks or poster sessions. With the conference so close, we would like to get all the juniors and seniors to participate. For more information, please contact Geology Department Chair, Dr. Jon Tso at [jtso@RADFORD.EDU](mailto:jtso@RADFORD.EDU)

The Radford University chapter of the Association of Computing Machinery along with Rackspace held a "Code Jam" on Saturday, February 22 in Davis Hall. Ten participants gathered together to work on two "apps": software to accomplish very specific tasks. One application was an adaptation of the popular "snapchat" for Google glass users. The other application was an ITEC 220 project 5 game idea generator which generates game ideas for students that do not have one. The event is designed to help people become more proficient with coding for software creation.

Rackspace representatives also visited on Monday, February 24 for a session with the ITEC 490 class as well as a "Tech Talk" in Heth Hall and career session in Stuart Hall Lounge. Two of the "Rackers" were RU Community Members Meghan Dembrowsky, a current graduate student, and Sean Drummond, a 2011 Computer Science and Information Technology Graduate. Dave King, a software team lead for Rackspace conducted the "Tech Talk" regarding the company's use of cloud computing for its clients.