

October 21, 2010



CSAT Bi-weekly Newsletter

From the Dean's Desk

NSF Funds Renovations to Curie Hall

The National Science Foundation recently awarded a \$399,750 grant to the biology and chemistry departments in the College of Science and Technology to renovate classroom and laboratory space in Curie Hall.

The project directors biology associate professor Mark Cline, chemistry professor Francis Webster, biology assistant professor Jason Davis, and chemistry assistant professor Kim Lane will use the funds to renovate rooms 031 and 341 to better enhance faculty and student research opportunities. As part of matching funds for this grant, the university has provided resources that will be used for the renovation of Curie 033A.

After renovations, Curie 031, currently Cline's laboratory, will have updated climate control technology to allow Cline and his research students to better regulate temperature and humidity for individual rooms such as the animal holding rooms. A fume hood, a surgery room and isolation areas will also be created to better isolate research projects and reduce the opportunity for contamination of specimens. The updates will also improve the air quality for all areas in the laboratory.

Cline and his students research how neurotransmitters can affect appetite. His research could lead to advances in controlling obesity in humans. "For me, the main reason for the renova-

tions was to get better climate control in the laboratory. Because I just started working with rats and I need more isolated areas to control separate climates based on the animals' needs," says Cline.

A laboratory for Davis will be created in Curie 033A and will house a variety of lab equipment including video microscopes, incubator, microbial hood, microcentrifuge and shaker. Davis and his student researchers will use the lab facility for microscopy to analyze brain tissue slices and invertebrate parasite identification, microbiology such as immune testing and microbial culturing, and hormone analysis. The first research conducted in it will include nest microbiology of bluebirds in rural and urban settings, analysis of hormone receptor distribution in the brains of Tibetan songbirds, immunocompetence in hormonally modified Madagascar hissing cockroaches, and hormone analysis in captive songbirds.

In this new lab "we will be doing work here in close concert with our extended aviary facilities at Selu," says Davis. "Basically we handle and test the birds and bugs out there, and then bring in our samples to the lab here for analysis. We'll be able to do 'cutting-edge' work right here on campus instead of having to haul everything to Virginia Tech or to share it in a crowded common lab in Reed-Curie," adds Davis.

The chemistry department will create a biochemistry laboratory out of the current classroom in Curie 341. "Currently, the laboratory space for biochemistry research measures only 150 square feet. The upgrade to a modern lab in Curie 341 will more than triple the space for biochemistry research and teaching projects," says Webster.

The additional space will allow Lane and her students to further their research into the chemistry and biochemistry of the enzyme beta-glucuronidase and its role in cancer therapy. These studies will include site-directed mutagenesis of the enzyme and subsequent biophysical analysis through electrophoresis, circular dichroism, and isothermal titration calorimetry. This space will also allow the expansion of other chemistry research projects, providing space for new scientific equipment. "The chemistry program now has almost 100 majors and the added space will ensure that we can better serve students interested in participating in research programs with faculty in the department," says Webster.



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Upcoming Events:

- Virtual Career Fair, Nov. 2
- CSAT STEM Club Guest Speaker Harvard's James J. McCarthy will discuss ocean and climate science, Nov. 11, 7 p.m. in McGuffey 206
- Center for the Sciences Faculty Forum, Nov. 12, 3—4 p.m. in McGuffey 203

Geology Student Group Receives National Honor

The RU student chapter of the Association of Environmental and Engineering Geologists (AEG) recently won the 2010 Outstanding Student Chapter Award. The national award is based on the club's activities, achievements and membership.

Geology program coordinator and chapter advisor Skip Watts was presenting at the AEG national meeting in Charleston, SC when he heard the award announced. "AEG is a big organization with 26 student chapters across the country. To be recognized as the best in the country is a big deal to the students," says Watts.

The RU chapter consists of close to 25 students who are actively involved in expanding their experiences through field trips, hosting guest lecturers and educational workshops, and organizing a short course titled Rock Slope Stability – Analysis and Mitigation at Virginia Tech. In 2008, more than 75 environmental and engineering geologists and

students from across the country attended the short course taught by nationally renowned guest lecturers. The club is scheduling the next short course for the spring.

Chapter president and geology major David Szynal says that the Outstanding Student Chapter Award proves to a national audience that the club is as active as any across the country. "It shows that we do a lot and it's great that we finally got rewarded for it," says Szynal.

Chapter member and club liaison Brittany



Lilligard is graduating in December and says she has experienced the benefits of having a very active chapter. "I'm looking into graduate school. I think grad school is going to be a lot easier coming from this program. When I went to a recent field camp, I already knew so much more than half of the other people because we are always somewhere and always learning as a part of the chapter," says Lilligard.

The Outstanding Student Chapter Award was established in 2001 to honor the AEG student chapter judged to have excelled over all others in a given year. Past recipients include Colorado School of Mines, University of Wisconsin – Madison, Portland State University and Kent State University.

Szynal looks forward to the activities planned for the upcoming year. "Receiving this honor makes us want to do a lot more. We want to win it again," he says.

Yang Invited to China to Share His Expertise

The Chinese Mathematics Education Research Group of Beijing Normal University has invited Mathematics and Statistics professor Wei-Chi Yang, to visit Beijing, China November 19-27. He will be a member of the referee panel and present awards to the top winners of the annual mathematics using technological tools competition. He says he is looking forward to the trip to learn about the latest uses of technology in mathematics. "I am excited to see how teachers and students work on real life problems using technological tools," Yang says.

Having recently published a joint work with a member of the Chinese Academy of Sciences, Yang is also invited to give talks at the Institute of Computational Mathematics.



Along with a published book, in 1995, Yang has founded the Asian Technology Conference in Mathematics (ATCM) and in 2007, the Electronic Journal of Mathematics and Technology (eJMT). He is a popular speaker and has been invited to Turkey, New Orleans, Texas, Mexico, Thailand and

California to speak about technological tools in mathematics.

Yang has traveled to China many times since 1994. "I have actually lost count how many times I've been to China, so I am not going to famous tourist places this time, but I am looking forward to meeting with some old friends and having some authentic Chinese food. However, I am not looking forward to the long flight, it takes 24 hours each way including layovers," he says.

-Cameron Elliott

CSAT STEM Club Hosts Guest Speaker on Arctic Climate Change

The CSAT STEM Club will host Harvard Professor James McCarthy as he discusses Arctic climate change November 11 at 7 p.m. in McGuffey 206.

McCarthy is Harvard's Alexander Agassiz Professor of Biological Oceanography. He received his undergraduate degree in biology from Gonzaga University, and his Ph.D. from Scripps Institution of Oceanography.

His research interests relate to the regulation of plankton productivity in the sea and in recent years have focused on regions that are strongly affected by seasonal and inter-annual variation in climate.

McCarthy is the author of many scientific papers, and is currently teaching courses on biological oceanography and biogeochemical cycles, marine ecosystems, and global change and human health.

-Cameron Elliott



Medical Technology Graduate Found Her Niche

For many college students the phrase “life after college” is quickly approaching. After years of attending classes, real life and job hunting is right around the corner. Especially with the economy at its current state, finding a job is on the forefront of soon to be graduates’ minds.

However, for 2002 Medical Technology graduate Ellie Coggins, Program Director for the School of Clinical Laboratory Science at Augusta Health, her first employer out of college has been her only employer.

“No, I didn’t have a hard time at all. That’s one of the best things about my profession. The jobs are plentiful. After graduation, I applied at several different hospitals, and was called for interviews. But I ultimately ended up staying at Augusta where I had done my clinical training. It was full-time with benefits right after graduation, and I enjoy it so much that I have been here ever since,” she said.

For Coggins, medical technology was not her first choice. “The path to obtaining my degree was not a straight one. I had always loved science, but I also held many other interests as well. I was unsure of what degree I wanted to pursue and ultimately took ‘intro’ classes in a number of fields to help me decide what I wanted to focus on,” she says.

After taking a couple of these classes she knew that she wanted to major in a science field, and started researching the different science related majors. She finally came across medical technology and realized that it was exactly what she was looking for.

“What I loved about the career is how it combined my love of science and laboratory work with a job in the healthcare field, where I could have the satisfaction of helping others and the virtual guarantee of a decent paying job immediately after graduation,” she says.

The School of Clinical Laboratory Science at Augusta Health is a 12-month clinical training program, which is affiliated with seven colleges and universities in Virginia and Pennsylvania, including Radford.

“My job is very diverse, which I enjoy. I interview and select students for the program, go to recruitment events where I promote the profession and Augusta’s program, instruct students by giving lectures and conducting student labs, make sure the program meets and maintains NAACLS accreditation standards, participate on the lab’s management team, and occasionally work on the bench performing patient testing,” says Coggins.

She credits her courses at RU for preparing her well for the work force. She also said, “I took a course in public speaking, which I think should be required! As part of my current job, I speak in front of people quite frequently and the course really helped me prepare for that. Outside of things specifically taught in courses, I learned to work independently and as part of a team. And I learned to tolerate and respect people different from me,” says Coggins.

-Cameron Elliott



Math and Biology Students Discuss Research During Chalk Talks Oct. 28

Two students will discuss their research during the upcoming Chalk Talks on Thursday, October 28 at 5 p.m. in Reed Hall, room 215. The talks are organized by biology faculty member Gary Cote and presented the last Thursday of the month.

Mathematics major Cameron Withrow will discuss her research Why Adding Points to a Donut is Associative. Her faculty mentor is John McGee.

Biology major Brian Ingram will discuss Scanning Electron Microscopy of Microscopic Crystals in Plant Tissues. His faculty mentor is Cote.

The presentations are a chance for the students to discuss their research in an informal and supportive environment. These talks give students valuable experience presenting their research and receiving feedback from fellow students and faculty.

“Any faculty member whose students conduct research should encourage their students to present,” adds Cote. “Remember that a Chalk Talk is a great experience for students, whether in the middle of their research program, starting their research, or finishing it up,” he says.

For more information about Chalk Talks, contact Cote at gcote@radford.edu.



Collette Dougherty presents her research during September’s Chalk Talks



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CSAT STEM Club News

The CSAT STEM Club will be going to Williams Orchard on Saturday, October 23 to visit the pumpkin patch and take a walk through a corn maze. Erin Fowler, the club's vice president, has talked to one of the Radford Alumni from the Alumni Advisory meeting that we just recently attended. and the alumnus said that he was involved with a Lego League if the club was interested. During the Tuesday October 19 meeting, we received update from Erin about the Lego League.

For the t-shirt design contest to design this year's CSAT STEM Club t-shirt, the winner was Erin . T-shirt prizes will be given out at the next meeting on November 2. Another event for the Club is a trip to the Museum of the Earth Sciences in Reed Hall on October 26. All are welcome to join the club to tour the museum.

We began collecting canned food for the Backpacking Club, the goal is for all the members to collect at least five cans, and we will continue collecting food until November 2.

Coming up, we have scheduled two guest speakers. The first will be geology professor Parvinder Sethi on November 4 in the Bonnie Hulbert Auditorium at 5 p.m. Dr. Sethi's talk will be a 3-D Presentation on the Grand Canyon. The club's goal is to fill up the whole auditorium.

Our second talk will be held on November 11 at 7 p.m. in McGuffey 206, and our guest speaker will be James J. McCarthy, a Professor of Biological Oceanography from Harvard. He will be talking about "Arctic Climate Change: Why it should concern us". The discussion will touch upon emerging elements of natural history, climate science, effects on indigenous peoples, and global connections to people living far from the Arctic. We will have a reception for Dr. McCarthy presents from 4-4:50 p.m. but the location will be decided at a later date.

Jasmine Jackson

Secretary of CSAT STEM Club

The CSAT STEM Club is very active throughout the year with field trips, educational guest speakers and community service.

