

Spring 2011



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Newsletter Designer ▪
Coordinator:
Tracey Sherman

Newsletter Editing:
Kathryn Hollandsworth

Please send information
for future issues to
Tracey@vt.edu

Department of **Forest Resources and Environmental Conservation**

313 Cheatham Hall, Blacksburg, VA 24061

540/231-5483 • Fax 540/231-3698 • <http://www.frec.vt.edu/>

Dr. Jason Holliday Awarded NSF Early Career Grant



Dr. Jason Holliday

Dr. Jason Holliday will use a \$1.5 million Faculty Early Career Development Program grant from the National Science Foundation to gain insight into how tree populations adapt at the genomic scale as a result of climate change.

“Winter dormancy is a hallmark of northern tree species that enables them to survive the freezing and dehydration stresses of winter,” said Holliday. “Although forest tree populations are well adapted to their local environments at present, climate change is substantially altering adaptive landscapes and is expected to lead to widespread maladaptation of tree populations to their seasonal temperature regimes.”

The genomic analysis will be used to inform our understanding of climatic adaptation in two related species that are also widespread in the United States — trembling aspen and eastern cottonwood. Together with black cottonwood, these three species and their hybrids are expected to be important feedstocks for the production of ethanol from woody biomass, owing to their rapid growth on marginal lands unsuitable for agriculture. The research will provide a link to practical breeding applications to optimize the productivity of poplar planting stock in a changing climate.

In collaboration with Assistant Professor and Extension Specialist John Munsell, Holliday will also develop investigative field workshops as part of Virginia’s Link to Education About Forestry program. Landowners, practitioners, and students who attend will explore the relationship between climatic adaptation and seed sources, as well as the potential impacts of climate change on forest productivity.



Jason Holliday in a Sitka spruce (*Picea sitchensis*) forest on Kodiak Island, Alaska – one of the locations from which Dr. Holliday obtained poplar clones for the current project.

From The Department Head

Dear Alumni and Friends:

Welcome to the Spring issue of "Forestry" from Virginia Tech! Recall that the recent National Research Council report noted that Virginia Tech Forestry Ph.D. program is one of the best in the country! We are very proud of this recognition, and this accomplishment is due to hard, focused, and dedicated work of faculty, students, and staff. This recognition is providing more motivation for us to advance our graduate education/research and successfully compete for more research funds. I am pleased to report that we now have 80 graduate students, a record high, of which 36 are Ph.D. students. This year, our research funding went up by 45% as a result of some large successful research projects. Selected projects include:

- a Faculty Early Career Development Program grant from the National Science Foundation
- a Coordinated Agricultural Grant to study the effects of climate change on southern pine forests from the USDA National Institute of Food and Agriculture (NIFA)
- two National Needs Fellowship projects funded by the USDA
- Integrating vegetation performance into complex engineered environments in urban watersheds funded by the ICTAS



Dr. Janaki Alavalapati
Professor and Head
Forest Resources and
Environmental
Conservation

You will note from this newsletter that we have recently hired 6 Postdoctoral Fellows and Research Associates to work on these and other research projects. As you can imagine, providing quality workspace for our graduate students and research associates is a challenging task. Fortunately, our Dean Winistorfer is helping us with a generous support to renovate a room in Cheatham Hall with the state of art infrastructure to accommodate more graduate students. I am confident to say that all the above will undoubtedly enhance our *Leadership in Forests and Environmental Conservation graduate education and research further!!!!*

I would like to take this opportunity to wish you and your families the best and happy summer!

Advisory Board Meeting

The FREC Advisory Board met on March 31, 2011. The Board appreciated the leadership provided by Mr. Brad Fuller for the year 2010-2011. The Board nominated Mr. Brent Keefer as the Chair and Mr. Ed Milhous as Chair-elect for the year 2011-2012.

Faculty and Students with Advisory Board Members



Kara Dodson Receives 2011 Udall Scholarship



Kara Dodson

Kara Dodson, a junior environmental resources management major, has received a 2011 Udall Scholarship from the Morris K. Udall and Stewart L. Udall Foundation. The Morris K. Udall and Stewart L. Udall Foundation, established in 1992 to honor Arizona Congressman Morris King Udall's 30-year legacy of public service, was created to provide federally funded scholarships for college students pursuing careers related to the environment, as well as to Native American students pursuing tribal policy or health care careers.

Dodson is one of 80 students from 61 colleges and universities, and the only one from Virginia, to receive a 2011 Udall Scholarship. Recipients are selected by a 14-member independent review committee on the basis of commitment to careers in the environment, health care, or tribal public policy; leadership potential; and academic achievement. Dodson received a \$5,000 scholarship; the highest amount awarded, and will travel to Tucson, Arizona, with other recipients to meet policymakers and community leaders in environmental fields, tribal health care, and government.

Dodson serves as president of the Virginia Tech Environmental Coalition and a student representative on the University Energy and Sustainability Committee. "Over the last few years, I've really focused my personal education from technical answers to environmental issues to natural ones," said Dodson. After graduation, Dodson hopes to work with the Watershed Alliance, a global movement of water advocates who patrol and protect over 100,000 miles of rivers, streams, and coastlines around the world. Her future plans include attending graduate school in the Appalachian region to study natural resources.

Welcome New Faculty and Staff



Stacey Kuhar and Family

Mrs. Stacey Kuhar joined the department in February 2011 as an emergency hire and has recently been hired as a full-time Office Support Specialist for the Forest Biometrics and Geomatics area. Stacey moved here from the Eastern Shore of Virginia in December 2010, when her husband's faculty position in the Department of Entomology was transferred to the Virginia Tech campus. She and her husband Tom currently reside in Blacksburg with their two young children, Daniel and Brianna. Aside from being fiercely competitive on the athletic field, where she truly tries to dominate in volleyball, softball and golf, she also enjoys more leisurely activities such as camping and scrapbooking.

Dr. Andy Laviner joined the department in May 2011 as a Research Associate in plantation forestry. His interests include resource management in plantation forestry. His current work is focused on loblolly pine plantation response to induced drought with and without supplemental nutrition. Andy received his B.S. in Conservation with minor in Soils and his M.S. in Forestry from North Carolina State University. He has fifteen years' experience in industrial forest research and private forestry consulting. He is a Certified Forester by the Society of American Foresters and a Registered Forester in South Carolina.



Dr. Andy Laviner



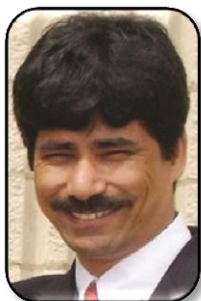
Dr. Charles Sabatia

Dr. Charles Sabatia joined the department in May 2011 as a Postdoctoral Research Associate in forest biometrics. His current focus is modeling the growth and yield of genetically enhanced and clonal stands of loblolly pine. His interests include modeling effects of genetics, silvicultural treatments, and climate on forest growth and yield, evaluating quantitative tools used to describe various aspects of forest stand dynamics, and the application of contemporary statistical methods to forestry problems. Dr. Sabatia received his B.Sc. in Forestry from Moi University, Kenya. He obtained his M.S. in Forestry from Oklahoma State University Stillwater, an M.S. in Statistics from Virginia Tech, and his Ph.D. in Forestry and Forest Products from Virginia Tech.

Dr. Xiaoyan Sheng joined the department in January 2011 as a research associate supporting the functional genomics and biotechnology lab. She received her B.Sc. in Horticulture from University of Guangxi, China, M.S. in Plant Genetics and Breeding from University Hunan Agriculture, China, and M.S. in Molecular Plant Pathology from University of Saskatchewan, Canada.



Dr. Xiaoyan Sheng



Dr. Raj K. Shrestha

Dr. Raj K. Shrestha joined the department in May 2011 as a Research Scientist. His interests include greenhouse gas emissions, carbon sequestration, integrated plant nutrient management, soil fertility, non-point source pollution, and soil quality. His current research is focused on greenhouse gas fluxes and ammonia volatility following nitrogen fertilization in managed forests of the Southeast and Pacific Northwest U.S. Dr. Shrestha received his M.S. and Ph.D. in Soil Science at the University of the Philippines. Before joining VirginiaTech, he worked as a Visiting Scientist at the International Rice Research Institute, as a post-doctoral research associate at University of Wisconsin-Madison, and as a Research Scientist at The Ohio State University. Dr. Shrestha and his wife Dr. Chandra L. Shrestha, molecular plant pathologist, will be relocating to Blacksburg.

Dr. Huei-Jin Wang joined the department in February 2011 as a Postdoctoral Fellow in carbon sequestration in forest biometrics and geomatics. Her interests are related to impacts of forest management on carbon sequestration. Her current work is focused on identifying influences on model uncertainty of carbon trends in land cover/use of the coterminous U.S. Dr. Wang received her B.S. in Forestry from National Taiwan University in Taipei, Taiwan. She obtained her M.S. in Forestry and Statistics from University of Idaho, and her Ph.D. in Forestry from Virginia Tech.



Dr. Huei-Jin Wang



Dr. Lecong Zhou

Dr. Lecong Zhou joined the department in April 2011 as a Senior Research Associate in poplar genomics. His interests are related to genomics and bioinformatics of plant biotic and abiotic stresses. His current work is focused on integrating whole-genome association mapping and landscape genomics to understand climate adaptation in *Populus*. Dr. Zhou received his Ph.D. in Plant Pathology from China Agricultural University in Beijing

Henderson Lawn Sycamore Tree Cloned

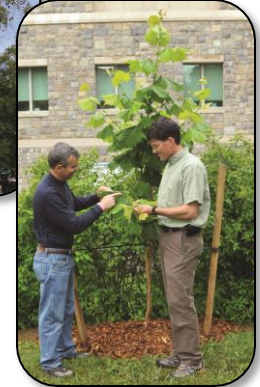
An old and once prominent sycamore tree on Virginia Tech's Henderson Lawn gets new life. It graced Henderson Lawn on the Virginia Tech campus for more than a hundred years, standing tall over generations.

But the tree had to come down last summer because it was slowly decaying and sick. **Drs. John Seiler** and **Eric Wiseman** cloned it using trimmings of the still living branches. Only six have rooted so far. Two took off, and now, thanks to expert attention, they're already 10 feet tall!

The clones will be placed in significant spots on Tech's campus. One will be planted in front of the College of Natural Resources and Environment at graduation time and the other will eventually return to Henderson Lawn.



"It's an identical replica...like an identical twin to the tree that was on the Henderson Lawn" said John Seiler, Professor of Forest Biology.



Top: Henderson Lawn Sycamore. Bottom: Drs. John Seiler and Eric Wiseman with the cloned identical twin.

Education Grant Awarded

Jennifer Gagnon, Matt Yancey, and Jason Fisher were awarded a \$10,000 education grant from the American Tree Farm System for their new program "Real Forestry for Real Estate." This program offers continuing education classes on forestry topics for real estate professionals in Virginia. Real estate professionals will be given New Landowner Packets to distribute to their clients interested in purchasing rural lands. The New Landowner Packets contain a variety of materials to introduce new landowners to active forest management practices, sources of assistance, landowner organizations, and a tree identification book. Ten Real Forestry for Real Estate continuing education classes will be offered from August through December 2011 throughout Virginia.

Forestry Field Studies Class

The Forestry Field Studies (FOR 3344) class spent five days on the road from May 18-22 touring forest operations and manufacturing facilities in Virginia and South Carolina. The students toured a modern high-production pine sawmill, a plywood mill, and a paper mill. They also visited a variety of forest management and harvesting operations, and saw the loblolly pine breeding and clonal research at ArborGen in South Carolina.

Outstanding RC&D Project

The 34th Annual Fall Forestry & Wildlife Field Tour in Russell and Dickenson Counties was awarded the Outstanding RC&D Project for 2010 from the Black Diamond Resource Conservation and Development Council.

Third Annual Graduate Symposium

The third annual graduate student symposium was held on March 30, 2011, and was well represented with five M.S. oral presentations, 11 posters, and five Ph.D. oral presentations. Many of our FREC faculty participated as moderators and judges. This year's keynote speaker was Dr. Richard Hirsh, Professor, History of Technology and Science and Technology Studies at Virginia Tech, and his abstract was titled "*Energy, Policy, and the Environment.*"

Winners of the symposium were: M.S. oral presentation – **Adam Watson**; Ph.D. oral presentation – **Joseph Conrad** and **Charles Sabatia**; and poster presentation – **Nina Craig**.

Symposium committee members who used their time, effort, and leadership to make this symposium a grand success are Ms. Courtney Reijo (Chair of the Planning Committee), Ms. Patricia Brousseau, Ms. Yajuan Chen, Ms. Katie Hoover, Mr. Kevin Minick, Ms. Ben Stein, Ms. Katie Trozzo, and Ms. Amy Werner. The FREC Graduate Affairs Committee who provided assistance and guidance throughout the process consists of Dr. Chad Bolding (Chair), Mr. Joseph Conrad, Dr. Susan Day, Dr. Kevin McGuire, and Dr. Randy Wynne. Poster judging is pictured below.



Coordinated Agricultural Grant to Study the Effects of Climate Change on Southern Pine Forests

The National Institute of Food and Agriculture (NIFA) has awarded a consortium of land-grant institutions in the South, which includes Virginia Tech, a Coordinated Agricultural Grant to study the effects of climate change on southern pine forests.

The research partnership is led by the University of Florida and, in addition to Virginia Tech, includes the following universities: Alcorn State, Auburn, Georgia, Mississippi State, North Carolina A&T, North Carolina State, Oklahoma State, Texas A&M, and Virginia State.

Dr. Thomas Fox is the lead principal investigator (PI) on the \$3.4 million portion of the grant going to the Department of Forest Resources and Environmental Conservation at Virginia Tech. He serves as the overall lead PI for silvicultural research on the grant as well as the Integration Team Leader for mitigation.

“The aim of the grant is to develop the knowledge needed to sustainably manage southern pine forests from Texas to Virginia in the face of changing climate,” said Fox. “Our overall goal is to improve the health, productivity, and sustainability of southern pine forests and provide landowners the tools they need to better manage their forests in the future to mitigate and adapt to climate change.”

Also from the Department of Forest Resources and Environmental Conservation and co-PIs on the grant are Drs. **Harold Burkhart, Randolph Wynne, John Seiler, Jason Holliday, Valerie Thomas, and Brian Strahm.**

Wynne, Professor of Forest Remote Sensing and co-director of Virginia Tech’s Center for Environmental Applications in Remote Sensing, is the overall project modeling leader with Steve McNulty of the U.S. Forest Service. That team includes Thomas, assistant professor of forest remote sensing, and Burkhart, who specializes in forest biometrics, in addition to researchers at other participating institutions.

Seiler, Alumni Distinguished Professor of Forestry, is working on two aspects of the project. He will be investigating soil respiration and the separation of total soil respiration into heterotrophic (CO₂ produced by microorganisms in soils) and autotrophic (CO₂ produced by tree roots) components. Seiler is also working with Martha Monroe of the University of Florida on the education component of the project. Public school teachers and students, as well as undergraduate and graduate students, are integrated throughout the project.

Holliday, Assistant Professor of Forest Genetics and Biotechnology, will research the genetics component of the project in collaboration with researchers at Texas A&M, North Carolina State, and the University of Florida. They want to better understand the genes that underlie climatic adaptation.

Strahm, Assistant Professor of Forest Soils and Ecology, will be focusing on the role and responses of forest soils to the mitigation and adaptation of southern pine ecosystems to climate change.



From top to bottom and left to right: Drs. Tom Fox, Randy Wynne, Jason Holliday, Brian Strahm, Harold Burkhart, John Seiler and Valerie Thomas

Tenure and Promotions Granted

Associate Professor **Amy Brunner** and Assistant Professors **Marc Stern** and **Eric Wiseman** were successfully granted tenure effective July 1, 2011. Drs. Stern and Wiseman were also promoted to Associate Professor.



Dr. Amy Brunner



Dr. Marc Stern



Dr. Eric Wiseman

2011 Southern Regional Natural Resource Extension Awards for Excellence

Several extension agents within FREC were awarded 2010 Southern Region Natural Resource Extension Awards for Excellence in the categories of Computer Software and/or Website (**Scott Barrett**, Online Continuing Education Program for Virginia's SHARP Loggers – Gold Award), Conference or Program Organization (**Neil Clark**, Ecosystem Services: Marketing Environmental Solutions, Silver Award), Extension Publication (**Adam Downing**, Your Woods Make all the Difference, Silver Award), Journal Publication (**John F. Munsell** and **Adam Downing**, Prospective Scope of Forest Management Education at James Madison's Montpelier, Bronze Award), and Program Organization (**Adam Downing**, Family Forestland Shortcourse: Preserving and Passing Virginia's Forestland to Generation Next, Silver Award). These awards were presented by the Southern Extension Forest Resources Specialists to recognize those with outstanding achievements and activities in a particular area of Extension work over a three-year period prior to nomination.

APSAF Young Forester Leadership Award

Jennifer Gagnon was presented the APSAF Young Forester Leadership Award at the 90th Annual Winter Meeting of the Appalachian Society of American Foresters in Charleston, S.C.



Jennifer Gagnon

Outstanding Faculty Award for 2010-2011



Dr. W. Michael Aust is the recipient of the Outstanding Faculty Award for 2010-2011. The college curriculum clubs annually honor a faculty member from each department in recognition of dynamic teaching ability, excellent professional attitude to teaching, and outstanding student relationships. This recognition is determined by students within the curriculum clubs.

Dr. Michael Aust

Dr. Randy Wynne Co-Authors Winning Paper



Dr. Randy Wynne

At the 19th High Performance Computing Symposium held in Boston, Massachusetts, April 4-6, 2011, Drs. Rhonda Phillips (MIT Lincoln Labs), Layen Watson (Virginia Tech Department of Computer Science), and **Dr. Randy Wynne** (Virginia Tech Department of Forest Resources and Environmental Conservation) won the Best Paper Award. The paper was titled "An SMP Soft Classification Algorithm for Remote Sensing."

Dr. Harold Burkhardt Keynote Speaker



Dr. Harold Burkhardt

Dr. Harold Burkhardt was the Keynote speaker for a Graduate Research Symposium held by the Faculty of Forestry and Environmental Management at the University of New Brunswick, Fredericton, NB, Canada in March, 2011. His presentation consisted of an overview of research, graduate education, and effective mentoring of graduate students.

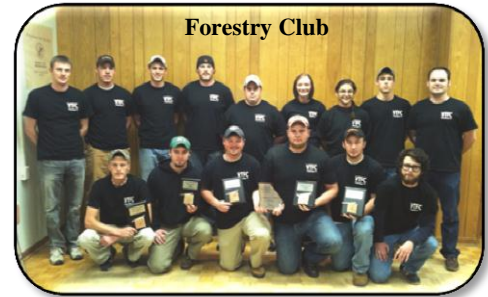
Student and Student Club Information



Marty M. "Scooter" Cogar II

Marty M. "Scooter" Cogar II, a junior majoring in wildlife science and environmental resource management, won the overall competition in the Stihl Timbersports Series Collegiate Southern Qualifier on March 18 in Watkinsville, Georgia. Cogar competed against 13 representatives from other colleges and universities across the Southeast in the standing block chop, single buck, stock saw, and underhand chop. The University of Georgia hosted the event in conjunction with the 54th Annual Association of Southern Forestry Clubs Conclave. Cogar's win earned him a \$1,000 scholarship and a trip to compete in the Stihl Timbersports Series Collegiate Championship at the Oregon State Fair in August.

Associate Professor **Philip Radtke**, the Forestry Club's faculty advisor, helps the students practice and compete in the contest annually. "The Forestry Club enters its top woodsmen into this competition, and this year, Cogar won a 'chop-off' against two of his teammates," said Radtke. This year the team won second in technical events and 4th overall.



Curriculum Clubs' Outstanding Member Awards

These awards annually recognize members of each club who have made outstanding contributions to their organizations.

- **Society of American Foresters – Kyle Dingus.** Kyle, a senior in forest resource management, is the outstanding member of the Society of American Foresters student chapter. He has shown more dedication to this professional society than any other member. He takes time to organize future events while also being present at every meeting and participating in all activities. We are pleased to recognize him as the outstanding member.
- **Forestry Club – Chase Giebner.** Chase, a senior in urban forestry, has served as both the Firewood Chair and the Conclave Chair. He has gone far beyond the call of duty and has contributed several hours this year. Chase has led firewood cutting days and organized practice sessions to prepare for Conclave. He has excelled both at raising more than \$6,000 from firewood sales, and at helping the Conclave Team achieve a 4th place finish, which hasn't occurred in a number of years.
- **Natural Resources Recreation Society – Christina Espada.** Christina is a senior in wildlife science. Her undying commitment and enthusiasm brought the Natural Resources Recreation Society to a new level. Her potent combination of side-splitting humor that has kept us in stitches with an excited, never-failing spirit for natural resources has made for an unforgettable year.
- **Wildland Fire Crew – Steve Eaheart.** Steve, a senior in forest resource management, has been a crucial member of the fire crew. He has been a qualified firefighter for four years and has served as a valuable leader to the younger and inexperienced members on and off fires. Steve has spent numerous hours reorganizing the equipment and rehabbing and cleaning tools. Steve also is very reliable to respond to a fire once we receive a call.
- **Xi Sigma Pi – Jessica Shum.** Jessica, a senior in forest resource management, has been instrumental in organizing our meetings, events, and service projects, and is also serving as treasurer. She is dedicated to Xi Sigma Pi's goals of promoting academic enrichment and public service, and she is committed to improving our club and leaving something for the next cohort of leaders to build on.

Undergraduate Student Recognition

The Alumni Award for Outstanding Senior honors a graduating senior in each of the four departments who has demonstrated exceptional academic, extracurricular, and professional leadership. The college outstanding senior is chosen from among the four department nominees. **Holly Kays** was selected as this year's recipient of the Alumni Award for Outstanding Senior.

Student and Student Club Information *(continued)*

Welcome New Graduate Students Spring 2011!

Ph.D. Program

Kristopher Brown
J.P. Gannon

M.F. Program

Brian Keiling

Graduate Student Recognition

Alumni and friends established the A. B. Massey Honorarium award in 1965 to honor the outstanding contributions of Professor A. B. Massey. The award is presented to four graduate students, one in each of the academic departments of the college, who have displayed outstanding academic and professional leadership. The Department of Forest Resources and Environmental Conservation recognized **Courtney Kimmel** at a college graduate reception on March 24.

The Robert L. and Esther S. Youngs Award for Excellence in Written Contribution to Natural Resources for 2011 was **Joseph Conrad**. The award, \$500 and a certificate, is made annually to a student currently enrolled in the college (or having received a graduate degree in the preceding year) who authors a scientific paper that demonstrates excellent scientific writing and contributes to advancing the understanding of any aspect of the management, utilization, conservation, or socio-economic effects of natural resources. The paper must meet standards for publication by a recognized scientific journal.

Congratulations Spring 2011 Graduates!

M.F./M.S.

Robert Bernier
Chad Campbell
Joshua Chandler
Miles Groover
Scott McKee
Clay Sawyers
Ritchie Vaughan
Adam Watson
John Wilburn
Jonathan Wyatt

Ph.D.

Courtney Kimmel
Charles Sabatia
Rupesh Shrestha
Daniel Waiswa



FRECS's coed softball team – The Big Ash Swingers

For more information about the *Department of Forest Resources and Environmental Conservation* please contact:
Ms. Sue Snow
313 Cheatham Hall
Mail Code 0324
Blacksburg, VA 24061
540-231-5483
suesnow@vt.edu
<http://www.frec.vt.edu/>

Alumni Corner / Announcements



Jennifer McKee

Jennifer McKee ('00 B.S. in natural resource recreation and '07 M.F. in forestry) is currently working as a Geospatial Project Developer for the Virginia Geospatial Extension Program at Virginia Tech, www.gep.frec.vt.edu. She primarily focuses on conducting urban tree canopy assessments. Information can be found at www.gep.frec.vt.edu/va_utc.html, for the Virginia Department of Forestry. She also assists with conducting geospatial workshops and helps faculty and students in CNRE with their geospatial needs.

Starting in July, she will be working as a GIS Programmer in the Entomology Department at Virginia Tech working on the Gypsy Moth project. She is looking forward to this new challenge.

Gifts from our clients and friends have a direct impact on the quality of learning, discovery, and engagement programs that the Department of Forest Resources and Environmental Conservation offers. We invite you to become part of our team! To make a tax-deductible contribution, send your check, payable to the Virginia Tech Foundation, Inc, to:

Department of Forest Resources and Environmental Conservation, 313 Cheatham Hall (0324), Virginia Tech, Blacksburg, VA 24061

For further information on memorial giving, endowed professorships, gifts of securities, planned or deferred giving opportunities or other contributions, please contact Mr. Bob Mollenhauer, Development Officer, at 540-231-8859 or send an e-mail to bobm5@vt.edu.