

Food Digest

Department of Food Science and Technology



Joe Marcy

Message from the department head

Greetings! I hope this newsletter gives you an indication of the Department of Food Science and Technology's busy year.

One highlight was March 21, 2014 — celebrating the grand opening of the Human and Agricultural Biosciences Building 1 with speeches from former President Charles Steger, Dean Alan Grant, and students from the food science and technology and biological

systems engineering departments. It was the culmination of years of planning and construction.

Now that the transition to HABB1 is complete, we can focus on projects in our new facility, and I want to encourage alumni and friends to come to Blacksburg so that we can show you our outstanding facility. With the shock of the move over, all will agree that working in this new building is a joy.

The old food science and technology building is getting some much needed renovations, including a fire detection system, new paint in public areas, and a sensory kitchen renovation. The university has conducted a feasibility study for turning the dairy processing pilot plant into a 2,300-square-foot, hi-tech classroom. It's still too early to

say if this will happen, but after months of planning, we are hopeful that we are on track for a new teaching space.

We have many new developments to tell you about, but expansion that I am very excited for is the establishment of three new endowed scholarships for food science and technology students. Pledges have been made to fund these scholarships through annual gifts from both corporate and alumni supporters. Financial aid for students is always appreciated and is extremely helpful as we grow our undergraduate program.

In spring semester 2015, we will teach the first new course in our undergraduate fermentation option. Herbert Bruce has joined the Department of Food Science and Technology as an adjunct professor and will be teaching a new brewing methods class. Later in the semester, we expect delivery of our new brew house and research malt roasting system. We believe that curriculum that explores broad application food fermentations will be an option that new students will seek. It will also serve to attract prospective students to our department.

We look forward to a prosperous 2015 for students and faculty!

Best personal regards,

Joe Marcy

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Faculty and staff changes

Karleigh Huff Bacon, director of the Virginia Tech Food Innovation Program, accepted a position as a scientist with the Food Safety and Microbiology Group at Kraft Foods in Chicago.

Joell Eifert replaced Karleigh Bacon as the director of the Food Innovation Program. She has over 18 years of food science experience in the industrial, regulatory, and academic sectors.

Brett Driver is the new project coordinator for the BSL2 Pilot Plant in the Human and Agricultural Biosciences Building 1. He was previously a quality assurance analyst and safe quality food practitioner for C.F. Sauer Co. in Richmond, Virginia.

Melissa Wright was hired as the chemistry lab manager for food science. She has more than 13 years of experience in quality assurance and quality control, environmental science, and lab technology.

Roman “Rusty” Rustia joined the department as the Human and Agricultural Biosciences Building 1 building manager. His technical experience includes management of building systems for optimal efficiency and corresponding energy savings as well as technical upgrades.

New faculty positions approved

Two new tenure-track Food Science and Technology faculty positions have been approved to begin in August 2015.

A food fermentation engineer will be hired to connect food technology and biotechnology with applications including flavor and fragrance production, dietary bioactive compounds, and bio-based consumer products. This position will make it possible to expand pilot plant capabilities by collaborating with the biological systems engineering department, and to enhance research in enology, brewing, malting, and dairy fermentations.

A food chemist will be hired to study food microstructure when designing healthy foods. Food structure affects nutrient impact and bioactive components perform differently in different structural matrices. This position will have the opportunity to design new foods or modify existing ones with the goal of maintaining health and well-being.

Food Science and Technology advisory board members

Bob Reinhard

Chair
Tyson Foods
Downer's Grove, Illinois

Payton Pruett

The Kroger Company
Cincinnati, Ohio

Tatiana Lorca

Ecolab, Food & Beverage Division
St. Paul, Minnesota

Steve Franzysen

Dupont Teijin Films
Hopewell, Virginia

Keller Watts

Smithfield-Farmland
Smithfield, Virginia

Tulin Tuzel

Sabra Dipping Company, LLC
Colonial Heights, Virginia

Jamie Clark

PrintPak Inc.
Atlanta, Georgia

Staff achievements



Hengjian Wang, laboratory specialist, was June's CALS Employee of the Month. Wang's interactions with department members are professional and enthusiastic, and he is always available to help with any task. During the move to the Human and Agricultural Biosciences Building 1, Wang was very active in packing labs, organizing items for the move, repairing equipment, and going above and beyond while still managing to support research and teaching in the original Department of Food Science and Technology building. His efforts made the transition much easier for the researchers and graduate students who needed the units to complete projects.



Joe Boling, senior programmer and analyst, was selected as the October CALS Employee of the Month. Boling's nominator praised his work ethic and expertise. Boling provides guidance in statistics for faculty, staff, and graduate students, and he is the contact for maintenance requests for the FST building, overseeing the inventory, and handling items for surplus. During the design phase of HABB1, Boling provided insight to help determine the layout of the labs and offices and the positioning of equipment. He helped organize the move to the new building, and acted as the point of contact for the movers.



Terry Rakestraw, administrative program specialist, was December's CALS Employee of the Month. Rakestraw has been with the department since 1996; first as the administrative assistant for a University Distinguished Professor, then as departmental secretary for multiple faculty members, and most recently, the department head's secretary. Her nominator praised her work ethic and expertise: "Terry encourages others to excel at what they do. She sets a very high standard for herself and her work, and her actions inspire us all to do better."



Vicki Keith, administrative program specialist, was one of five CALS employees who were awarded certificates from University Organizational and Professional Development, in partnership with New River Community College. She received the Office Software Skills Certificate after completing six full days of required UOPD training. Keith provides departmental administrative support by submitting grant proposals and newsletters, working with HokieMart, making travel arrangements, and assisting with workshop and conference planning.



Ann Sandbrook, wine analysis lab specialist, received the Laboratory Employee Professional Development Network's Staff Award for Outstanding Performance in Labs. Sandbrook conducts analyses, troubleshoots equipment, and improves analytical methods to more efficiently process the ever-increasing volume of samples that are submitted by wineries across the country.

Alumni news

Carla Tyler (M.S. '09) is an epidemiologist for the state of Texas in region 11, which is the southern part of the state.

Lauren Wright (B.S. '10) is currently employed by Sabra Dipping Co. in Richmond, Virginia as a production supervisor.

Robert Moore (M.S. '09) is a food scientist at Olam Edible Nuts in Edenton, North Carolina. He and his wife Tonya welcomed a baby girl, Hattie Mae, into their lives on Dec. 16, 2013.

Richard Davidson (M.S. '94) is vice-president of sales and business development for Frutarom, a New Jersey company with annual revenue approaching \$1 billion.

Tom Payette (B.S. '85) is a wine making consultant who assists East Coast Wineries. He was recently elected to a three-year term on the Virginia Wine Council where he will act as an industry representative on legislative and regulatory issues pertaining to winery and vineyard activity.

Melanie Dorenkott (M.S. '14) is a food safety manager at Flavorseal in Avon, Ohio.

Food science and technology alumna offers wine quality workshops at Penn State

Denise Gardner (M.S. '09) an extension enologist at Pennsylvania State, offers several wine quality improvement workshops throughout the year. These two-day workshops teach Pennsylvania wine makers and winery personnel how to identify and correct defects that occur in the state's wines. Workshop participants also learn about wine sensory attributes. Attendees can taste commercial wines and evaluate them for defects, and learn their individual threshold level for detecting defects. They also use olfactometers to test their ability to recognize various odors. Other states with strong wine industries offer workshops and classes regularly, and Pennsylvania is modeling its program similarly.



Denise Gardner

With the support of the Specialty Crop Block Grant, Gardner's team has developed a digital defects kit that was distributed to all registered and licensed wineries in Pennsylvania. The kit includes an introduction to the Wine Quality Improvement Program and a video presentation for people to watch. There is also a list of items that can be bought at the grocery store to help people recognize the odors of many defects. The kit's purpose is to help wineries train new production and tasting room employees.

Food Science and Technology's alumnus has one of Fortune 500's "Coolest Jobs"



Quoc Tra

Fortune.com featured Quoc Tra (B.S. '98) in his role as a senior food scientist at The Kroger Co.

Kroger has 16 dairies and two ice cream plants and Tra formulates new ice cream flavors for the supermarket chain. He recently developed a huckleberry ice cream and a frozen pineapple coconut frozen yogurt that will be sold exclusively at Kroger.

A biomimicry research engineer, a Harley Davidson collections specialist, and a Mattel chemistry and electronics manager were also showcased. The article in its entirety can be found at:

<http://fortune.com/2014/06/02/500-cool-jobs/>

Duncan Elected vice president of the American Dairy Science Association

Professor Susan Duncan was elected the American Dairy Science Association's vice president for the Dairy Foods Division. This is a one-year term after which she will become president of the organization.

Duncan joined the food science and technology department in 1990 as an assistant professor with an emphasis in value-added dairy foods. She has an 80 percent research and 20 percent teaching appointment.

Her research program focuses on chemical and sensory quality of foods and beverages with emphasis on dairy foods. She has published over 85 research papers, several book chapters, and she has

contributed to several revisions of the "Standard Methods for the Evaluation of Dairy Products" as well as to Northeast Dairy Practices Council publications. Her dairy foods research priorities include modification of milk and dairy products to increase nutritional value through pre- and post-harvest technologies. She is actively involved in research associated with materials for improved packaging of food and beverages, with special interest in photochemistry of milk and functional foods.

For the past three years Duncan has served as an ADSA board member of Dairy Foods. During her activity on the board, she developed and implemented the Multidisciplinary and International Leadership

Symposium, which has become a featured symposium at the annual meeting. Recently, she has led the efforts to increase awareness of the value of ADSA membership, including conceptualizing the Student Affiliate Division video contest for promoting membership at all levels. Duncan, who joined the ADSA in 1986 as a graduate student, was recognized by the organization with the ADSA Foundation Scholar Award in 1998.

Many Virginia Tech faculty, graduate, undergraduate students, and alumni received awards at this meeting. It was amazing to hear the number of times that Virginia Tech was included in the description of the award recipient.

New course offered: *Professionalism in Food Science*

A new graduate course was offered for the first time during fall semester 2014. The one-credit professionalism in food science course is required for new food science and technology master's and doctoral students. The course covers communication skills, research ethics, and research project design for the food science profession. The course was developed in order to orient students to professional and academic expectations. It includes topics such as academic versus industry research, lab safety and ethics, and communication of science to different audiences.

Fall semester welcome picnic

The Department of Food Science and Technology's fall semester welcome picnic was held in October. This event provided a casual atmosphere that allowed students, faculty, and staff to mingle and get to know one another a little better. The barbecued chicken was excellent, as always, and attendance was strong.



New graduate students enjoy the picnic

Food Risk Management Course

Food science and technology course 4984 is a new one-credit course that was offered for the first time during fall semester 2014. Foodborne illnesses associated with ready-to-eat foods have created a need for individuals with awareness of, and skills in, risk management science. The Food Safety Modernization Act requires all quality programs to be risk based. The 12 students learned the components of risk management plan development, and they actually developed a model risk management plan for the production of a pathogen-free further processed product. Student feedback regarding the class was very positive.

President Sands' installation



President Timothy Sands

On Oct. 17, 2014, Virginia Tech President Timothy Sands was officially installed as the 16th President of Virginia Tech.

During the two days surrounding the installation, many special activities occurred. Faculty and staff formed a procession from War Memorial Chapel to Burruss Hall Auditorium where the installation ceremony was held. During the ceremony, Sands removed his University of California, Berkeley robes and donned Virginia Tech's presidential robes. The Corps of Cadets performed a Pass in Review on the Drillfield immediately after the ceremony. The entire campus was invited to attend a spirit rally, an ice cream social, and a community pizza party. There were performances by student organizations, and even a pickup basketball game played by President Sands, faculty, staff, and students. C-SPAN founder Brian Lamb interviewed Sands and interactive activities were presented at the Moss Arts Center.

Part of the festivities included a three-hour event called "Experience Virginia Tech: Learn, Explore, Engage." This program highlighted Virginia Tech's teaching, research, and outreach excellence with lectures, interdisciplinary panels, hands-on demonstrations, and engaging displays. More than 50 faculty members and 15 student groups were featured and several food science and technology faculty were very active. Renee Boyer moderated "The Food We Eat" panel discussion; David Kuhn participated in a water display; and Melissa Chase and Joe Eifert participated in a food display.



Robert Williams and Chris Caver (M.S. candidate) speak with President Sands

President Sands' visit to HABB1

Following his installation on October 17, 2014, Virginia Tech President Timothy Sands began visiting Virginia Tech's colleges and departments. On Oct. 30, he visited the Human and Agricultural Biosciences Building I as part of his CALS tour.

Poster presentations by food science and technology and

biological systems engineering faculty and students provided President Sands with an overview of our various programs. An open reception for CALS faculty and staff was held in the pilot plant of HABB1. At the reception President Sands took the opportunity to address the group, respond to questions, and to meet and interact with CALS faculty and staff. Attendance was strong, and President Sands appeared to be impressed with all the activities currently happening in CALS.



Student researcher studies cider production

Meg McGuire, a senior majoring in food science and technology from Dublin, Virginia is conducting research under Assistant Professor of Food Science and Technology Amanda Stewart and Assistant Professor of Horticulture Greg Peck. Her research interest is how crop yield of apple trees affects cider quality. Does a higher number of apples on an individual tree negatively impact cider quality? Apple trees are biennial bearers, meaning that high crop yield years are followed by low yield years. Trees with higher crop loads partition nutrients and water more sparsely than trees with lower crop loads. Optimizing orchard management practices can help growers produce fruit with the perfect balance of tannins and acids to produce quality cider.

Virginia's licensed cideries are on the increase, and the industry is expected to continue to boost Virginia's economy for years to come. The Virginia Department of Agriculture and Consumer Services recognizes this trend and is administering USDA grants to researchers from Virginia Tech, Cornell, Washington State University, Michigan State, and the University of Vermont. The intent is to create interdisciplinary Extension and research programs to redevelop the North American cider industry.

Future Farmers of America

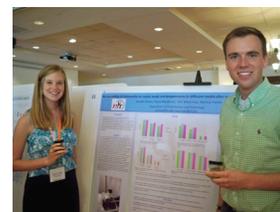
Milk Quality and Products Career Development Event

The FFA Milk Quality and Products CDE was held in June 2014 in the Human and Agricultural Biosciences Building 1 pilot plant. Seven teams participated in the event. Participants completed a written exam on milk production and marketing, evaluated milk samples for flavor and quality, and identified cheeses and milk fat contents. Sherando High School of Stephens City, Virginia won the event and went on to compete at the National FFA Convention & Expo in Louisville, Kentucky. Team members were Timothy Kopczynski, Randall Gray, Cailin Orgen, and Brooke Fletcher. They were coached by Christina Whitacre. At the national contest, the team came in fourth overall, giving them a Gold Emblem award. Fletcher, Gray, and Kopczynski earned Gold Emblem individual awards, and Orgen earned a Silver Emblem award.



Undergraduates participate in research symposium

The Summer Undergraduate Research Conference was held July 2014 at the Virginia Tech Graduate Life Center. Students presented posters on their 10-week long, summer research projects that they planned and executed as they worked with faculty, graduate students, and research staff.



Diana Woodrum and Joey Droter

Sean O'Keefe mentored Caroline Greene, a senior majoring in human nutrition, foods, and

exercise, as she performed flavor compound analysis of horchata de chufa using GCMS and GCO instrumentation.

Joey Droter, a senior majoring in biology, and Diana Woodrum, a junior majoring in food science and technology, were mentored by Monica Ponder as they conducted their research on the recoverability of salmonella spp. on cumin and peppercorn seeds in different media.

Andrew Neilson and Ponder mentored Annie Ickes, a senior majoring in food science and technology. Her research investigated the use of plasma levels of trimethylamine-N-oxide as a biomarker for cardiovascular disease.

The symposium was very well attended with over 200 undergraduate presenters.

Cider production: *from tree to bottle*

A cider production workshop was offered at the Human and Agricultural Biosciences Building 1 in November. During the two-day workshop, participants learned about cider production from both the orchard and cider-making perspectives. They were introduced to the latest research-based information to advance their cider orchard, fermentation techniques, and marketing practices. Content was tailored to commercial producers who are, or will be soon, in production.

The workshop was a mix of classroom lectures and hands-on laboratory training. Information was shared about the current state of Virginia Tech's cider research projects, including orchard management practices that impact cider quality, cultivar selection, the cost of growing hard cider apples, the potential

increase in the Mid-Atlantic cider market, understanding apple tannins, and laboratory skills needed for consistently producing high-quality cider. Participants were also trained in recognizing and preventing cider faults and flaws.

The workshop was a sold out event, with 38 participants representing each of the nine Virginia cideries. More cidery workshops are planned for the future. Food Science and Technology faculty, staff, and students organized and delivered a large portion of the workshop's content. Many thanks to Amanda Stewart, Andrew Neilson, Molly Kelly, Ken Hurley, Brian Wiersema, Tina Plotka, Sihui Ma, Tom Boudreau, Andrew Lee, Megan McGuire, and Sean Smith for their efforts to make the workshop a success!



Photo courtesy of Greg Peck

EuroSense 2014



Left to right: Kristen Leitch, Alexandra Walsh, and Susan Duncan

Susan Duncan and two master's students, Alexandra Walsh and Kristen Leitch, attended and presented posters at the EuroSense 2014 conference in September. The meeting, with the theme "A Sense of Life," was held in Copenhagen, Denmark. The posters presented from the Duncan lab group included:

Emotional response to sweeteners in tea by K.A. Leitch (presenter), S.E. Duncan, J. Dunsmore, S. O'Keefe, and D. Gallagher and;

Evaluating cognitive and physiological emotional responses with facial coding, and fingertip sensing technology to light-induced off-flavours in milk by A.M. Walsh (presenter), B. Bortz, H. Potts, D. Gallagher, and S.E. Duncan.

Future Farmers of America

Food science career development event

The FFA Food Science CDE was held at the Human and Agricultural Biosciences Building 1 in October. Central High School in Woodstock, Virginia placed first out of the four participating teams. The competition included a product development project, sensory evaluation, a written test, and food safety and sanitation problem identification.

Team members were Taylor Cooper, Emma Schechtel, Tierra Scott, and Caroline Truban. The team was coached by Ms. Sherry Heishman. Stonewall Jackson High School placed second at the state level and Broadway High School came in third. Lizzie Funkhouser, from Stonewall Jackson High School, received top-placing individual at the state level.

The Central High School team went on to the national FFA contest in Louisville, Kentucky where the team received a Bronze Emblem award.



State Food Science CDE - Winning team

Food science and technology Fermentation Science Option

The Department of Food Science and Technology will offer a fermentation science option as part of its undergraduate curriculum beginning in 2016. This is not a minor. It is a new option, similar to the food business and food and health options that are now offered with a food science degree.

Students in the fermentation science option will be trained as food scientists, but additional courses will be required in areas related to fermentation science. The option is intended to provide both theoretical and hands-on training in food, beverage, and industrial fermentation in order to prepare food science and technology students for jobs related to:

- fermented beverage production including wine, beer, malting, cider, and distilled spirits;

- dairy fermentation;
- vegetable fermentation;
- pharmaceuticals and biotechnology and;
- industrial fermentations such as amino acids, wastewater treatment, and industrial products.

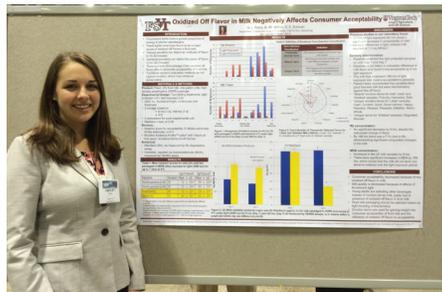
New courses and labs include food and beverage fermentation, which includes a two-hour lab and one hour of lecture; fermentation microbiology in lecture format; distillation and fermentation analysis which includes a two-hour lecture and one hour of lab work; and fermentation process technology and instrumentation which includes a two-hour lab and one hour of lecture. Additionally, students in this option will take currently offered courses, including brewing science, wines and vines, and sensory science.



Study abroad in Germany

Elisha Johnson, a senior majoring in food science and technology, studied abroad in Hamburg, Germany at the Hamburg University of Applied Sciences from March – July 2014. The exchange program provided a great opportunity to be able to meet new people from all around the world. While abroad, Johnson traveled to different countries and places in Germany. The months she spent in Germany allowed her to become truly immersed, and she felt like a regular German citizen, not just a visitor. Johnson said that Germany became her second home, and the people that she met became her second family.

Food science and technology undergraduate recognized



Hayley Potts

Hayley Potts, a senior majoring in food science and technology, received first place in the American Dairy Science

Association's Undergraduate Dairy Foods Paper competition. The paper addressed conjugated linoleic acids and was entitled, "Dairy Fats: The Good, The Bad, and The Ugly." She also co-authored and presented a research poster, "Oxidized Off Flavor in Milk Negatively Affects Consumer Acceptability" at the ADSA meeting. Her research was conducted in Susan Duncan's laboratory.

Hayley was also the winner of the National Dairy Promotion and Research Board Scholarship sponsored by Dairy Management Inc.

International Conference on Recirculating Aquaculture

The tenth International Conference on Recirculating Aquaculture was held in August 2014 at the Hotel Roanoke. ICRA started in 1996 and is held every two years for individuals in industry, government, and academia who are involved in recirculating aquaculture. Presentations and poster sessions from leading experts, along with a trade show featuring 18 exhibitors, were part of the events held at the conference.

More than 200 individuals from more than 20 countries participated. The two-day conference featured 57 speakers and 19 posters, and offered a tour of The Freshwater Institute in Shepherdstown, West Virginia. The Freshwater Institute is a cold water research facility specializing in aquaculture technology development, application, and demonstration.



Regional meeting at Plants for Human Health Institute

In October 2014 several young faculty and their graduate students attended the Food Manufacturing regional meeting at the North Carolina Research Campus in Kannapolis, North Carolina. The meeting was hosted by the Plants for Human Health Institute. Faculty and students from Clemson, North Carolina State and Virginia Tech shared ideas and research interests through symposia and poster sessions as they explored opportunities for future collaboration.

Virginia Tech presented eight of more than 30 posters that were presented at the meeting. Assistant Professor of Food Science and Technology Andrew Neilson spoke about his research exploring the anti-diabetic activities of cocoa flavonols.

Dole Food Chairman and Founder of the Plants for Human Health Institute David Murdock established the institute on the North Carolina Research Campus in 2008 with the intention of making the institute the premier U.S. research center on nutrition. Multiple schools in the University of North Carolina system, as well as corporations like Monsanto, General Mills and Dole foods, have set up research labs on the campus.

Projects at the institute include identification of nutraceutical properties of fruits and vegetables, plant breeding to improve the health benefits of fruits and vegetables, and improving harvest techniques to ensure that consumers get the freshest fruits and vegetables with maximum health-protective properties.

Food Science Club 2014-2015 update

- Zach Ewen** – President
- Jordan Newkirk** – Vice president
- Michelle Stark** – Secretary
- Andrew Gilley** – Treasurer
- Maria Fiore** – Activities chair
- Ashley Searing** – Outreach chair
- Brian Jones** – Fundraiser chair
- Stephanie Pollard & Lauren Bowman** – Industry liaisons
- Lily Yang** – Competition chair

To further expand the club, four new positions were created: activities chair to plan events for the club, fundraiser chair to fundraise for the club, industry liaisons to work together to schedule speakers to come talk to the club and organize food for the meetings, and the competition chair who serves as the College Bowl team captain and organizes product development teams and the area meeting trip.

In April, Quality Assurance Supervisor of Shearer’s Foods Ashley Winkler spoke to the club about summer internship opportunities. Representatives from Nestle also spoke to the club and hosted a recruiting event. Also, a Hershey’s representative came to recruit students for their product development co-op and on-site interviews were conducted.



Tony Lukas (M.S., 2013) speaks to the FSC

The club hosted several speakers during the year. Tony Lukas (M.S. '13) food safety scientist at Pepsi Co. and a Virginia Tech alumnus,

spoke to the club about the company. Melody Ge, a speaker from the Safe Quality Food Institute, explained the different aspects of SQFI’s food safety auditing on October first. She also talked about their Food Safety Auditing Scholarship Program, which awards its winners with an internship with a certification body and a chance to attend the SQF International Conference.

College Bowl

Virginia Tech’s Food Science Club college bowl team traveled to Raleigh, North Carolina in April 2014 and placed third in the College Bowl competition for the second year in a row. The competition was part of the annual Food Science area meeting at North Carolina State, where Virginia Tech competed against the host institution, the University of Delaware, and the University of Maryland.

Undergraduate members: **Laura Gotthardt, Amanda Salinas-Jones, Michelle Stark**

Graduate members: **Katie Goodrich (Captain), Lily Yang**

Food science and technology undergraduate visits Antarctica



Lester Schonberger

Lester Schonberger, a senior majoring in food science and technology, spent two weeks in Antarctica while he participated in the Hokies Abroad: Antarctica

program through the Virginia Tech biology department. Along with students from 15 other institutions, Schonberger flew to Ushuaia, Argentina to meet a boat for a two-and-half-day voyage to the Antarctic Peninsula. For five days, Lester went on two excursions per day that included

island camping and participating in a “polar plunge”. He was able to observe wildlife such as whales, seals, and penguins as well as the overall landscape and climate of an Antarctica summer. He received six credits of work - three of which were completed in the fall through a series of short essays and a research paper. His research was related to food availability for Antarctic research programs as it relates to production, procurement, storage, and preparation. While there, he conducted research with his group members about the sustainable development of Antarctic tourism and the effects on its environments.

Golden Can Competition



Counting donations for the Golden Can Competition

The Food Science Club donated 2,544 pounds of canned goods to the Interfaith Food Pantry in Blacksburg. Seven universities participated in the competition.

North Carolina State came in second with 199 pounds of canned food.



HABB1 Grand Opening

The College of Agriculture and Life Sciences celebrated the grand opening of the Human and Agricultural Biosciences Building 1 in March 2014. Events included a ribbon cutting, tours of the building, and a reception. Former President Steger, Dean Alan Grant, Daniel Wolozny, a doctoral candidate in biological systems engineering, and Alexandra Walsh, a doctoral student in food science and technology, spoke at the ceremony. The

93,860-square-foot building is the first of four new structures planned for the Human and Agricultural Biosciences Precinct. It incorporates open workspaces and communal areas so that faculty and students can work collaboratively.

“For me, this new building will significantly contribute to the advanced sensory science work I want to conduct. With our professional-grade kitchen, beautiful

focus room, and state-of-the-art sensory booths equipped with lights, touch screen monitors, and cameras, I will have unlimited opportunities to learn and discover. And while I love all the technology that we have in our labs, I don’t think you need it to interpret the emotions of the people who work in this building — we love to be here,” said Alexandra Walsh, a Ph.D. Candidate in Food Science and Technology.

Sensory Evaluation lab open house

A day long open house for the Sensory Evaluation Laboratory was held in October 2014. It was one of the many activities that occurred on campus as part of the Virginia Science Festival. The lab is housed in the new Human and Agricultural Biosciences Building 1, and the open house offered interactive stations that included a mock sensory panel and a focus group setting.

Attendees got a behind-the-scenes look at the state-of-the-art sensory lab, including the new video technology that is being used to evaluate facial expression and emotional responses to food. They were also offered the opportunity to sign up to participate in future



food science sensory tests held at Virginia Tech.

This was the debut of the Virginia Science Festival. It was a week long festival that featured events in more

than a dozen communities across the state. It was held to highlight Virginia’s growing influence as a hub of science, technology, engineering, art, and mathematics research, and education.

Like the page on Facebook: www.facebook.com/VirginiaTechSensoryEvaluationLaboratory

How emotions affect our food choices

Food's role in social gatherings, bonding experiences, and survival make it a focal point of the human experience. Understanding reactions to different kinds of food is important in marketing and public safety.

Professor of Food Science and Technology Susan Duncan's current research investigates physiological and emotional responses to food, and how subconscious food consumption decisions relate to obesity. Duncan has a variety of tools for interpreting the complexity of emotions and how they are related to food. She conducts interviews and sensory tests that examine volunteers' responses to various food scenarios. Facial expressions are captured with video equipment in the state-of-the-art sensory laboratory, and language and facial motions are categorized for clues to emotional



responses to food. Her work is being done in collaboration with the Departments of Psychology, Civil and Environmental Engineering, Agricultural Leadership, and Community Education, and the Institute for Creativity, Arts, and Technology.

Duncan measures physical reactions to food through heart rate, brainwaves and skin response. A specialized face-reading software program interprets muscular

motions which translate study participants' facial expressions into emotions which correspond with how well the food is liked by the individual. This level of insight into consumer response will help companies improve products and choose what products to bring to market. Additionally, this research will ultimately assist consumers with making food decisions that are healthy as well as emotionally fulfilling.

Special topics course certifies Master Food Volunteers

Melissa Chase, state coordinator of the Master Food volunteer program, taught a special topics class designed to recruit Master Food volunteers and introduce students to career options in food science and with Virginia Cooperative Extension. The class demonstrated safe food preparation techniques,

and individual faculty members were invited to speak about topics related to their areas of expertise.

At the end of the semester students were certified as Master Food Volunteers. Volunteers are an important resource for disseminating information about food preparation, nutrition, and food safety. They serve as a community resource as they educate the public about healthy food options and safe food preparation. Volunteers operate under Virginia Cooperative Extension's program which partners with the Virginia Agricultural Experiment Station to provide resources for the program.

In the class, students developed educational tools, such as illustrated books, games, and flash cards that targeted various demographic groups and promoted healthy eating habits and safe food handling tips.

The next step for the cohort of certified students is to fulfill 30 hours of community service and pass on the knowledge of what they learned in this special topics class.

The class was a great success and stands a good chance of being offered again.

Outstanding Alumni awards

Kevin Holland (Ph.D. '09) received the 2014 Outstanding Food Science and Technology Recent Alumni Award. He is a product developer for Tree Top Inc. in Selah, Washington. In this role, Holland is responsible for formulating new products, commercial scale-up of products, troubleshooting existing products, providing technical support to internal and external customers, and managing research projects. He has a supervisory role within his group and contributes to management across divisions. He has provided insight and process improvements to reduce hold inventory and increase plant efficiencies.

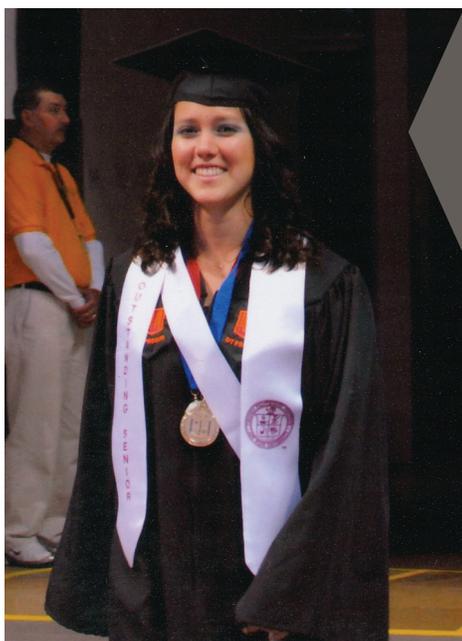
In addition to his primary career path, Holland started his own editing business, Holland Associates, for editing/proofreading books, scientific articles, newsletters, and medical dictation. He also serves as a volunteer firefighter in the Selah Fire Department.

Before taking his position at Tree Top, Holland worked as a postdoctoral associate in the Department of Food Science and Technology at Virginia Tech where he was responsible for completing a research grant developing natural alternatives to synthetic antimicrobials in beverages. Holland has spoken at numerous seminars and provided guest lectures, via Skype, to product development classes.

David Rasmussen (B.S. '96, M.S. '99, Ph.D. University of Tennessee '04) received the Outstanding Award for Alumni Who Graduated More than 10 Years Ago. He is a food safety and analytics manager at the Nestlé Product Development Center in Solon, Ohio where he manages food analytical services for the Product Technology Center. He also leads food safety risk assessments and mitigation strategies for all new research and development-driven product and process development for Stouffer's, Lean Cuisine, Tollhouse, and other global Nestlé brands. Rasmussen shares his expertise with scientific and industry audiences through many invited presentations.

He serves as the Northeast Ohio Chapter President for the Virginia Tech Alumni Association. He annually visits the Department of Food Science and Technology to recruit students, talk to the Food Science Club about Nestle internships and opportunities, and discuss food safety research collaboration opportunities with faculty.

Rasmussen is active in ministry leadership at Gateway Church, serving as a youth pastor, prayer ministry leader, and teacher. He is an ordained elder and pastor.



Outstanding Senior award

Laura Griffin of Leesburg, VA, received the 2014 Food Science and Technology Outstanding Senior Award. Griffin has been very active during her undergraduate career. She worked as an undergraduate researcher in Andrew Neilson's lab for 5 semesters, studying extraction, fractionation and thiolysis techniques for cocoa and grapeseed. Griffin is a member of Phi Beta Kappa, Phi Kappa Phi, Gamma Sigma Delta, and she maintained a 4.0 every semester of her education. She was a University Honors Mentor, a certified recreational sports group fitness instructor, and she taught ballroom dance lessons and competed in Latin dance competitions.

Griffin is now working on a master's degree in food science at N.C. State University.

Fall 2014 Dean's List

Amberley Bayse, junior, Fincastle, Virginia
Anne Ickes, senior, Lewisburg, Virginia
Anne Peters, senior, Riner, Virginia
Ashley Searing, junior, Boones Mill, Virginia
Brendan Parr, junior, Henrico, Virginia
Caitlin Truong, freshman, Chester, Virginia
Christopher Winslow, junior,
Corissa Tracy, senior, Chesapeake, Virginia
Diana Woodrum, junior, Sterling, Virginia
Elisha Johnson, senior, Herndon, Virginia
Hayley Potts, senior, Purcellville, Virginia
Jeannette Litschewski, sophomore, McLean, Virginia
Jennifer Zornjak, junior, Leesburg, Virginia
Jessica Standford, freshman, Bordentown, New Jersey
Katharyn Tupitza, senior, Blacksburg, Virginia
Katrina Wright, sophomore, Clifton, Virginia
Kili Teh, senior, Salem, Virginia
Kristen Bowman, junior, Reidsville, North Carolina
Lauren Ogren, junior, Devon, PA
Maria Fiore, junior, Winthrop, Massachusetts
Mary Blodgett, junior, Bloxom, Virginia
Meagan Harmeson, senior, Yorktown, Virginia
Megan Beatty, sophomore, Blacksburg, Virginia
Melissa Morgan, sophomore, Winchester, Virginia
Michelle Stark, junior, Fredericksburg, Virginia
Nicole Virginian Schaack, sophomore, Wall, New Jersey
Samantha Banks, junior, Virginia Beach, Virginia
Stephanie Such, senior, King George, Virginia
Sushrruti Virginiaratharaj, sophomore, Glen Allen, Virginia
Virginia Kelly, senior, Christiansburg, Virginia

Spring 2014 Dean's List

Amberley Bayse, junior, Fincastle, Virginia
Andrew Gilley, senior, Bel Air, Maryland
Andrew Smithson, senior, New Cumberland, Pennsylvania
Anne Peters, senior, Riner, Virginia
Anne Ickes, senior, Lewisburg, West Virginia
Ashley Searing, junior, Boones Mill, Virginia
Caroline Ryan, senior, Downingtown, Pennsylvania
Caroline Royston, freshman, Shamong, New Jersey
Christina Weaver, senior, Hockessin, Delaware
Christopher Caver, senior, Hampton, Virginia
Christopher Winslow, junior
Diana Woodrum, junior, Sterling, Virginia
Emily Clarke, senior, Fairfax Station, Virginia
Lester Schonberger, senior, Alexandria, Virginia
Hayley Potts, senior, Purcellville, Virginia
Ian Phillips, senior, Alexandria, Virginia
Jenna Angell, sophomore, Lynchburg, Virginia
Jennifer Zornjak, junior, Leesburg, Virginia
Kevin Carney, junior, Downingtown, Pennsylvania
Laura Gotthardt, senior, Hillsdale, New Jersey
Le Mar Baliwag, senior, Sterling, Virginia
Maria Fiore, junior, Winthrop, Massachusetts
Mary Blodgett, junior, Bloxom, Virginia
Meagan Harmeson, senior, Yorktown, Virginia
Megan Beatty, sophomore, Blacksburg, Virginia
Melissa Morgan, sophomore, Winchester, Virginia
Nicole Van Schaack, sophomore, Wall, New Jersey
Shane Pasch, senior, Virginia Beach, Virginia
Tamzin Kaiser, senior, Blacksburg, Virginia
Tan Vi, junior, Blacksburg, Virginia

* Dean's list requires a GPA of 3.4 or higher

Second annual departmental poster session held

Another wonderful turnout of entries from graduate and undergraduate students marked the second departmental poster competition that was held in March 2014.

Cash prizes were awarded to the top-placing posters. In the graduate student division, there was a three-way tie:

Courtney Crist (Ph.D. candidate) “Application of Emotional Facial Analysis Technology to Consumer Acceptability Using a Basic Tastes Model.”

Melanie Dorenkott (M.S. '14) “Oligomeric cocoa procyanidins possess enhanced bioactivity compared to monomeric and polymeric cocoa procyanidins for preventing the development of obesity, insulin resistance, and impaired glucose tolerance during high-fat feeding.”

Matt Schroeder (Ph.D. candidate) “Impact of Virginia Tech Summer Academy on Student Intended Major.”

In the undergraduate division, **Hayley Potts** won first place with her poster entitled, “Oxidized Off Flavor in Fluid Milk Negatively Affects Consumer Acceptability.” **Diana Woodrum** was awarded second place with her poster, “Media identification for Improved Detection of Salmonella from Peppercorns.”

Five prestigious judges spent the day interviewing the contestants and critiquing the entries: **Joe Herskovic**, a Research Fellow in Innovation at ConAgra Foods, who has been instrumental in assisting our research activities in emotions and food and is an advocate for our research program; **Gordon Smith**, vice president and Fellow at ConAgra Foods who has been extremely important in facilitating our research relationships and directing funding toward our program; **Denny Brooks**, vice president of Innovation Technology Research at Diageo where he leads the basic science research team is invested in our research program; FST alumna **Tatiana Lorca**, Sr. Manager of Food Safety Education and Training at EcoLab, Inc.; and **Nancy Dudek**, grants coordinator with the College of Agriculture and Life Sciences at Virginia Tech.



Team takes second in product development competition

Virginia Tech’s product development team placed second in the 2014 D.D. Williamson Natural Coloring Competition for Students with their submission of “No-Melt Berry American Cheesecake.” The product was a frozen dessert that utilized the butterfly pea, a flower that originated in Taiwan, to produce a vibrant royal blue color. The colorful dessert also featured beet juice which produced a red hue. Team members were Jordan Newkirk, Harshit Agrawal, Andi Stone, Andrew Smithson, Andy Ly, Kate Carter, and Meagan Harmeson.



Berry American Cheesecake

The winning team was from the University of California Davis, whose entry was called “Strip-Z: all Natural Instant Fruit Beverage Strip.”

Teams compete by submitting an original concept for a naturally derived coloring in food or beverage applications. Students are judged on originality, technical innovation, color choice, and feasibility. The top three teams receive cash prizes and free admission to the 2015 Institute of Food Technologists annual meeting in Chicago.

2014 annual spring awards celebration

The Department of Food Science and Technology's annual awards recognition event was held on April 24, 2014. The traditional cookout and picnic followed the event, featuring Department Head Joe Marcy's famous barbecued chicken, which was thoroughly enjoyed by all in attendance.



Departmental and industry awards

Huy Le, Annandale, Virginia

Boyd-Arline Award

Laura Griffin, Leesburg, Virginia

*Food Science and Technology Achievement Award
Outstanding Food Science and Technology Senior*

Jenna Angell, Lynchburg, Virginia

Food Science and Technology Achievement Award

Mary Blodgett, Bloxum, Virginia

Paul Large Scholarship

Kevin Carney, Downingtown, Pennsylvania

R. F. Kelly Award

Diana Woodrum, Sterling, Virginia

Marvin Poster Memorial Scholarship

Melissa Morgan, Winchester, Virginia

*Food Science and Technology Achievement Award
sponsored by the Dairy Foundation of Virginia*

Megan Beatty, Blacksburg, Virginia

W. F. Collins Scholarship

Hayley Potts, Purcellville, Virginia

Harvey Scott Scholarship

Hailey Cassell, Galax, Virginia

Carolina-Virginia Dairy Products Association Scholarship



IFTSA Chapter Leaders Workshop

The Institute of Food Technology Student Association hosted the Chapter Leaders Workshop at the IFT meeting. Officers from Food Science Club chapters around the nation came together for this three-day event to discuss goals and solutions to problems. Food science and technology undergraduates Zachariah Ewen and Michelle Stark attended the workshop, along with doctoral student Lily Yang, who is the vice president of marketing for IFTSA.

The executive board and chapter officers discussed the need for

geographic redistribution. Food Science Club chapters are grouped together by area, and the chapters in each area compete against each other in College Bowl. IFTSA acted on this discussion and changed how chapters are grouped to reduce the distances chapters would have to travel to attend area meetings and to balance the number of chapters between areas.

The executive board explained a method they use when talking about difficult issues, called the “Six Thinking Hats,” from a book written by Edward de Bono. The basic idea

is that one way of thinking needs to be discussed at a time to avoid overlooking any aspects of an issue and to explore the issue from different perspectives.

Attendees also worked together to brainstorm solutions for common problems facing Food Science Clubs. Several scenarios discussed how to get graduate students and faculty more involved with the club and how to get students more interested in networking and attending area meetings.

SCHOLARSHIP WINNERS

Doctoral student **Ershad Sheibani** received The Society of Flavor Chemists Memorial scholarship that was awarded through the Institute of Food Technologist’s Feeding Tomorrow program. This prestigious scholarship is given each year to one food science graduate student that is conducting research in some aspect of flavor chemistry each year.

Lily Yang, a Ph.D. candidate, received the 2014 Extra Mile Award. Each year, one food science and technology graduate student is selected based on exceptional leadership skills, peer mentoring, teaching, research, publishing, creativity, and service.

Hayley Potts, a senior majoring in food science and technology, received a Feeding Tomorrow scholarship for the 2014 academic year. Students must have an exemplary transcript in order to be considered for this award.

IAFP - Indianapolis, Indiana

Virginia Tech's food science department was strongly represented at the 2014 International Association of Food Protection conference. For the first time we had an exhibitor booth that provided information about the department's research areas, information for potential students, and opportunities for collaboration with industry and other universities.

SPEAKERS:

Joe Marcy – Mission Impossible: The Perfect Seal Every Time – Seal Integrity to Ensure Food Safety and Protection against Microbiological Hazards.

Monica Ponder – Surrounded by Friends – How Does Life in a Biofilm Improve Survival of Pathogens?

Margo Duckson (Ph.D. 2014) – Allyl Isothiocyanate Vapor Reduces Foodborne Pathogens on the Surface of Cantaloupe (*Cucumis melo* L. Var. *reticulatus*).

POSTER PRESENTATIONS:

Joe Eifert – Optimizing Sample Plans to Improve Microbiological safety in a Food Processing Plant.

Robert Williams – Effect of Delmopinol Hydrochloride on the Prevention and Removal of *Listeria monocytogenes* and *Salmonella Enterica* Stainless Steel-Adhered Biofilms.

Lauren Bowman (M.S. candidate) – Effect of Inoculation Method on the Survival of *Salmonella* Tennessee on Whole Black Peppercorns.

Nathan Briggs (M.S. 2014) – *Salmonella* Biofilm Formation on Peppercorns and Polystyrene.

Jian Wu (Ph.D. 2014) – Aqueous Methanol Extracts of Pomegranate Peel and Chinese Gallnut Inhibited Growth of *Vibrio parahaemolyticus* and *Listeria monocytogenes*.

IFT - New Orleans, Louisiana

SPEAKERS:

Joe Marcy – Making Smart Packaging Smarter for Today's Markets.

Lily Yang – Using Social Media to Communicate a Food Safety Message: A Student Perspective on Social Media Use.

POSTER PRESENTATIONS:

Application of Emotional Facial Analysis Technology to Consumer Acceptability using a Basic Tastes Model.

Courtney Crist, Elizabeth Arnade, Kristen Leitch, Susan Duncan, Sean O'Keefe, Julie Dunsmore, and Dan Gallagher.

The Potential of High Pressure Processing to Impart Unique Flavors to Raw Oysters. **Susan Duncan, Amanda Salinas-Jones, Linda Granata, Dianne Bourne, George Flick, and David Kingsley.**

Photodegradation of Chlorophyll at Specific Visible Wavelengths Affects Soybean Oil Quality. **Laurie Bianchi, Susan Duncan, Sean O'Keefe, Janet Webster, and Andrew Neilson.**

Identification of Inhibitory Compounds in Medicinal Mushrooms against *L. Monocytogenes* and *Z. Baillii*. **Stephano Chu, Robert Williams, Renee Boyer, and Sean O'Keefe.**

Effect of Cooling Rates and Temperatures on Quality and Safety of Quahog Clams (*Merrenaria Mercenaria*). **George Flick, Linda Granata, Dianne Bourne, Michael Peirson, Tara Riley, Robert Croonenberghs, and Jennifer Kensler.**

Comparison of 2 Extraction Solvents and Extraction Time in SDE Technique for the Analysis of Flavor Profile in Oolong Tea. **Ershad Sheibani, Sean O'Keefe, Susan Duncan, Dave Kuhn, Andrea Dietrich, and Jordan Newkirk.**

The Study of Learning Sciences in Food Science Education. **Liyun Ye, and Sean O'Keefe.**

College of Agriculture and Life Sciences Graduate Teaching Scholars Program: an Innovative Model to Prepare the Next Generation of Faculty in Higher Education. **Liyun Ye, Gabrielle Fundaro, Mara Grossman, Matthew Schroeder, Jason Smith, Dan Tekiela, Courtney Vengrin, and Donna Westfall-Rudd.**



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