



Agricultural Research Station Welcomes Students to our Laboratories and Fields

Agricultural Research Station (ARS) is the unit of the College of Agriculture that is responsible for carrying out the land grant research mission of Virginia State University. In keeping with this mission, ARS generates scientific and technical information that helps small, limited-resource, socially-disadvantaged and veteran farmers remain profitable. Research is conducted in three broad areas of Food Science, Plant Science and Small Ruminants. Students play an important role in carrying out scientific investigations in all three areas. Each year, student workers help us to expand the boundaries of what is possible in agriculture as they learn and gain experience alongside our faculty, staff and post-doctoral fellows. While helping ARS implement research projects, student workers gain valuable hands-on training, preparing them for graduate studies or to enter the job market. Students will also have opportunities to conduct their own research and present their results at symposiums and meetings. As in the past, we want students to join our faculty, staff and post-doctoral fellows in implementing various research projects. If you are interested in joining one of our research teams, check out the overviews below and contact the associated faculty member directly or feel free to reach out to Dr. Wondi Mersie, Associate Dean and Director of Research at (804) 524-5631 or wmersie@vsu.edu. ARS faculty offices are located in the M. T. Carter Building, across from the ROTC Building.

Food Science

Researchers in our Food Science division are pursuing a number of projects focusing primarily on production on small farms, but addressing issues that affect all points along the food chain including post-harvest storage, food processing and packaging, food safety and value-added products for health benefits to combat chronic diseases. ARS faculty members collaborate with colleagues in extension and the academic departments, as well as with scientists in the private sector. Training the next generation of food scientists is also a primary goal of this discipline, and faculty offer hands-on training and internship opportunities to students and food professionals, allowing them to explore the food and nutritional sciences in depth.

Dr. Chyer Kim

The Food Safety and Microbiology (FSM) program endeavors to improve the safety and quality of our region's food supply. Our work studies the routes of microbial contamination from farm to fork, and how to better verify, prevent and reduce the presence of foodborne pathogens. Some on-going projects investigate the microbial quality of foods from farmers' markets, the prevalence of certain bacteria in water samples and the application of probiotics to various situations. Potential future careers in the field include Food Microbiologist, Food Product Developer and FDA, USDA and Public Health Official, amongst others.

Contact Dr. Chyer Kim: (804) 524-6715, ckim@vsu.edu

Dr. Rafat Siddiqui

The Food Chemistry and Nutrition Science Laboratory studies foods that act as nutraceuticals in preventing chronic diseases, including inflammation, diabetes, obesity, cancer and muscle wasting in aging. The research involves investigation of biochemical, cellular and molecular pathways that are influenced by bio-active ingredients in foods using cellular and animal models of chronic diseases. Currently, the research is focused on the health benefits of grape pomace, papaya, pomegranate, plums, ginger, turmeric and berries. The research experience provides excellent training for continuing studies in medicine, pharmacy, dietetics and graduate research. Trained students find career opportunities in universities, USDA, NIH and the pharmaceutical and nutraceutical industries.

Contact Dr. Rafat Siddiqui: (804) 524-5957, rsiddiqui@vsu.edu

Dr. Toktam Taghavi

The Postharvest Research Program is a multidisciplinary program that focuses on extending the shelf life of fresh fruits and vegetables and reducing food waste by studying the interactions of plant cells with their environment and the microorganisms that invade them. Students will get hands-on-training in the lab, field and greenhouse, learning how to design and conduct experiments, collect and analyze data, prepare reports and present them at local and national symposiums. Our graduates have been hired at the USDA, the Department of Defense and many other institutions.

Contact Dr. Toktam Taghavi: (804) 524-5952, ttaghavi@vsu.edu

Dr. Yixiang Xu

Within the Food Science program, Dr. Yixiang Xu's research focuses on a number of topics, including (1) evaluation of nutritional and functional properties of foods; (2) development of plant-based protein products; and (3) application of nanotechnology in food science.

Her program provides hands-on and critical thinking training for students to enhance their academic experiences as well as their market readiness. Students working on these projects will gain opportunities to enhance their resumes by attending and presenting their work at various conferences and co-authoring scientific publications.

Contact Dr. Yixiang Xu: (804) 524-5668, yixu@vsu.edu

Plant and Soil Sciences

The work of the Plant and Soil Sciences program is to help local and regional farmers select and grow profitable crops with an emphasis on sustainability. Recent projects have investigated edamame, hops, various legume crops and industrial hemp. Research done on these crops at the ARS has helped our farmer-partners to make informed decisions about how to best use their land and grow their businesses.

Dr. Asmare Atalay

The soil and water laboratory routinely analyzes soil, water and plant tissue. Dr. Atalay's current work focuses on removing certain chemicals from municipal and agricultural wastewater and evaluating them as value-added fertilizers. The laboratory provides opportunities for students to gain hands-on training in the areas of soil chemistry, water quality and environmental science.

Contact Dr. Asmare Atalay: (804) 524-6721, aatalay@vsu.edu

Dr. Harbans Bhardwaj

Dr. Bhardwaj's research focuses on developing legume crops that are adapted to Virginia, and legume and West African food crops related to the 1619 project. He has done extensive work in Symbiotic N Fixation and biodiesel production from canola. He also has extensive experience teaching at VSU. All students will have considerable opportunities to publish scientific articles as first authors. Students who are interested in working on new crops should reach out to Dr. Bhardwaj for more information.

Contact Dr. Harbans L. Bhardwaj: (804) 524-6723, hbhardwaj@vsu.edu

Dr. Ramesh Dhakal

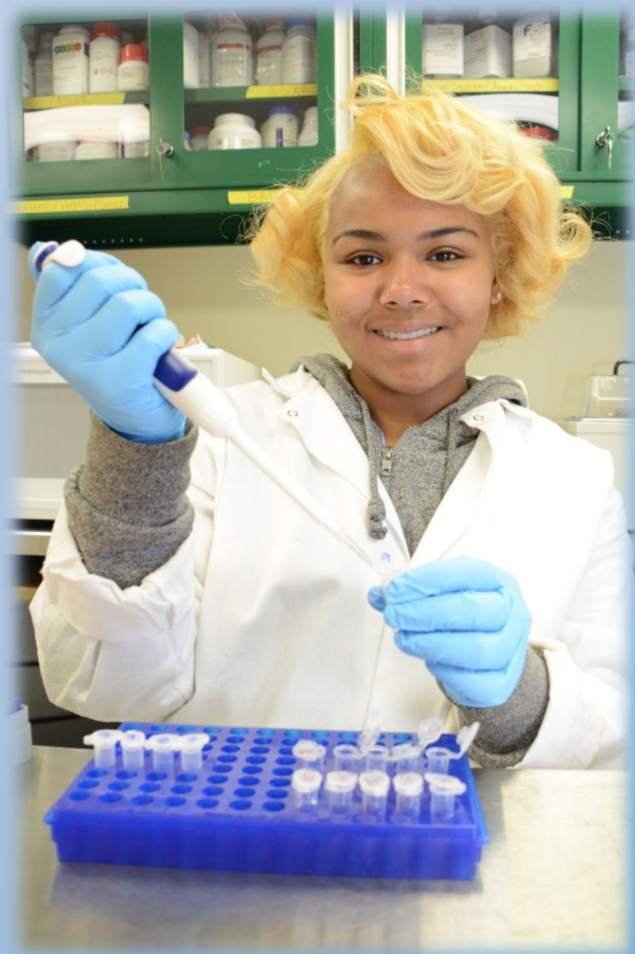
Dr. Dhakal's research on the exciting new crop industrial hemp is currently focusing on identification of suitable grain varieties for the commonwealth region. This program is expanding and we are conducting research on various aspects of plant breeding and agronomic management. We are always looking for students to participate in industrial hemp research so that we can prepare the future technical workforce through their involvement in every aspect of field and laboratory research.

Contact Dr. Ramesh Dhakal: (804) 524-5615, rdhakal@vsu.edu

Dr. Guo-Liang Jiang

The VSU Soybean Breeding and Genetics Program focuses on new cultivar and germplasm development of edamame and other soy-food specialty soybeans that will benefit small farmers, urban agricultural gardeners and end-users/customers. The program also conducts basic, application-oriented, publishable research that supports the development of cultivars and germplasms. We will provide an excellent opportunity for students to gain knowledge, learn new techniques and obtain hands-on experience in plant science research.

Contact Dr. Guo-Liang Jiang: (804) 524-5953, gjiang@vsu.edu





Dr. Maru Kering

Dr. Kering's research work aims at evaluating production potential and developing production systems for bioenergy crops and alternative grain and fiber crops. The program works on both annual and perennial species of bioenergy crops to meet the growing demand for eco-friendly fuels. His research is currently focused on investigating certain perennial grasses, annual crops like industrial hemp and forage sorghums and the production potential of flax as an alternative grain and fiber crop.

Contact Dr. Maru Kering: (804) 524-5955, mkering@vsu.edu

Dr. Zelalem Mersha

Working with Dr. Mersha in the areas of Plant Health and Integrated Pest Management (IPM) is a great role for a curious student. With our current projects, students may uncover the causes of global food shortages, or what goes into growing the ingredients of their favorite foods (like chickpeas for hummus). Join Dr. Mersha's team and learn what it takes to uncover not only crops' invisible foes such as viruses and nematodes, but also IPM remedies like the nurturing of ecofriendly organisms that work against harmful pathogens.

Contact Dr. Zelalem Mersha: (804) 524-2694, zmersha@vsu.edu

Dr. Shuxin Ren

The Plant Biotechnology laboratory uses wild species to improve crop production and quality under environmental stress conditions. Our work explores topics from the genetics of heat tolerance, to removing heavy metals from contaminated soil, to improving the shelf life of tomatoes. Our laboratory provides ample opportunities for student training, from material preparation and selection in the field and greenhouse, to molecular techniques and hands-on practice in the lab.

Contact Dr. Shuxin Ren: (804) 524-3094, sren@vsu.edu

Dr. Laban Rutto

The Alternative Crops Program focuses on specialty high-value crops with potential for production in the region. Currently we are conducting field trials on hops to support the craft beer industry, and hazelnut, which we are introducing to Virginia. Students will mainly have the chance to work in the fields and greenhouses at Randolph Farm, with occasional assignments in our labs.

Contact Dr. Laban Rutto: (804) 524-6781, lrutto@vsu.edu

Small Ruminants

The Small Ruminants program at VSU began in the 1990s, and currently focuses on goats and sheep. Growing ethnic diversity in the region has led to an increase in demand for meat from different animals, and with that demand have come questions about the animals and how to keep them healthy and productive. The small ruminants research team works to provide answers to these questions to help local farms to be profitable. Each year, students help implement the various projects in the small ruminant program.

Dr. Eunice Ndegwa

In the Animal Health research program you will learn about animal and biomedical sciences, including animal handling, microbiology, immunology and molecular biology, and apply that knowledge to understand current issues in small ruminant health. Our ongoing research explores (1) the significance of gut microbes as animal and public health pathogens, (2) the development and evaluation of probiotics for small ruminants and (3) the use of plants with bioactive compounds to control parasites and bacterial pathogens.

Contact Dr. Eunice Ndegwa: (804) 524-5364, ndegwa@vsu.edu

Dr. Vitalis W. Temu

Working with Dr. Temu's Forage Ecology Research team, students will have the opportunity to explore questions about how plants interact in their communities and how they respond to stress, and how free-range chickens behave when foraging on pasture. Research in this program also seeks to understand how small ruminants affect solar energy harvesting in grazing ecosystems, and the role of plants as indicators of environmental conditions.

Contact Dr. Vitalis W. Temu: (804) 524-6717, vtemu@vsu.edu

Dr. Stephan Wildeus

The Small Ruminant Germplasm Laboratory works on the effective use of unique sheep breeds in sustainable production systems. Our Landrace hair sheep accelerated mating project utilizes a systems approach and addresses all aspects of sheep production, including breeding, health, nutrition, harvest and carcass quality and marketing. Data is being used to develop a simulation model for sheep production. The Germplasm lab is also researching the use of assisted reproduction in sheep to make Landrace hair sheep breeds more readily available to small-scale producers.

Contact Dr. Stephan Wildeus: (804) 524-6716, swildeus@vsu.edu

Dr. Adnan Yousuf

Students working with Dr. Yousuf will have the chance to learn the skills needed to conduct practical research. One ongoing project seeks to increase the usefulness and value of abundantly available crop residues through biological treatment with edible mushrooms. Participants in this project will have a better understanding of the main interactions among biological, chemical and physical factors directly involved in mushroom biotechnology.

Contact Dr. Adnan Yousuf: (804) 524-6795, ayousuf@vsu.edu



Randolph Farm

Virginia State University programs and employment are open to all, regardless of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status.
An equal opportunity/affirmative action employer.