Expertise includes:
- Molecular-based detection of noninvasive in foods
- Sample analysis using reverse transcription qPCR

Equipment available for use includes:
- Created tailor-fit processing facility
- Food product test kitchen
- Analytical chemistry/microbiology capacity
- Product preparation – choppers, cleaners, peelers, mixers, and steam kettles
- Centrifugal, cyanide displacement pumps
- Thermal processing – heat exchangers, twin-screw extruder, retort, continuous-flow microprocessor, spray dryer, freeze dryer, cabinet dryer
- Rheological – cold atmospheric plasma, high pressures, and ultrasonic light
- Biosensors
- Packaging – bag-in-box for aerobic processing, bottle biax for fast-filling and vacuum packaging unit for ready-to-use broth
- Instrumentation for characterizing products – rheometers, texture analyzers, network analyzer
- Process validation tools including enzyme-linked time-temperature integrators and microelectronic sensors

At FBNS, we develop and teach approaches to enhance the quality, safety, and nutritive value of foods that can positively impact the sustainability of the global food supply chain. Through collaboration with industry partners, we establish transformational interventions that become tomorrow’s best practices.

We use qualitative research to study the relationship between social determinants and eating behaviors in order to design and evaluate community education programs. This enables us to enhance the knowledge of people in the community that result in positive behaviors and improved health.

In our instructional design team develops and delivers innovative food safety learning modules for the food industry and assesses their impact in enhancing knowledge of the participants and improving food safety outcomes for the organization.

FBNS is a leader in providing food manufacturing and entrepreneurship expertise internationally to meet the demand for a safe, nutritious, flavorful and affordable food supply. For more information, please visit our website: fbns.ncsu.edu.
Leaders in Research and Innovation

FBNS faculty researchers work with companies to improve food products, partner with regulatory agencies to assist in the development of appropriate regulations, and conduct independent research that helps improve the health and well-being of our community.

Our students and staff work with faculty to drive research and develop protocols to improve the safety, quality, nutritional value, and desirability of various food products and biopharmaceuticals.

Food Safety & Foodborne Disease Prevention

Lynnette Johnston

Work with host livestock and their products to ensure protection through education and extension programs, with focus on the FSMA regulations.

Sophia Kathariou

Focus on the ecology and adaptations of foodborne pathogenic bacteria, Salmonella, and Campylobacter.

Food Manufacturing & Entrepreneurship

Alexander Chouljenko

Research the safety and microbial ecology of fermented and acidified vegetable products.

Dana Hanson

Focus on the safety and quality of meat products as affected by processing and processing methods.

Marvin Moncada

Research alternative and innovative food preservation technology, designed to create novel food products, leveraging with new materials to develop new products.

Health & Well-Being

Jon Allen

Research vaccines/membrane fortification in foods: devastation and metabolites of food components that impact chronic disease risk. Sustainable food protection applied to developing countries globally.

Rodolph Barrangou

Focus on the biology and genetics of CRISPR, gene systems in bacteria. Building defense resistance in probiotic strains and better culture used in foods.

Deepthi Salvi

Research food processing technologies: high pressure, microwave, ultrasonic light to ensure food safety and quality.

K.P. Sandeep

Modeling and validation of continuous flow microprocesses of high-added-value foods. Sensor development in relating specific processing of multiple foods.

John Sheppard

Research the process optimization of yeast-based biomolecules, including alcohol- and peel-based co-culture.

Josep Simunovic

Microwave-assisted sequential processing: emerging technologies for cooking, plant food monitoring, and production validation for new, shelf-stable foods.

Lisa Dean

Determine phycobilisomes, nutritional, and sensory properties, and analyze petri and plant parts as related to pigment, processing practices, and processing.

MaryAnne Drake

Identify chemical components responsible for flavor in cheeses and whey ingredients as affected by fermentation and processing.

Keith Harris

Use food chemistry and nutrition principles to study the effects of processing and storage in health and functional properties of plant food products.

Suzanne Johannsmeier

Determine chemical/bacterial basis for improved production of fermented and acidified vegetables and co-culture.

Suzanne Lu

Develop novel e-learning strategies for improving educational outcomes among the food industry workforce (virtual reality, case studies, interactive videos).

Hao Ha

Develop skills.0

Develop and evaluate innovative teaching techniques and technologies and community engaged learning settings through the incorporation of self-efficacy in a research-based curriculum.

April Fogelman

Research and development of nutrition education at the secondary school level.

NC State University Department of Food, Bioprocessing and Nutrition Sciences 919-515-2951

For a complete list of all faculty, professional staff and program interests, visit our website: fbns.ncsu.edu