# Table of Contents

- Working groups summary ................................................................. 2
- Financials ......................................................................................... 3
- USDA Small Farm Safety project ....................................................... 4
- Food Entrepreneur Conference ......................................................... 5
- IACET accreditation ........................................................................ 5
- Grant submissions ........................................................................... 6
- Produce Safety Program ................................................................. 6
- Aquaponics working group .............................................................. 7
- O Grows ......................................................................................... 7
- Goals and objectives ..................................................................... 8
- Affiliate faculty ............................................................................. 10
Interview
WITH THE
Director

It is hard to believe Dr. Christy Bratcher, professor of animal sciences, took the helm as director of AUFSI over a year ago. What challenges has she faced, and what experiences as director have been most rewarding? Dr. Bratcher gives us a glimpse of what it takes to lead a center.

Q: How did you initially feel when you found out (over a year ago) that you were chosen as director?
A: I was excited for the opportunity to help others get more research funding and disseminate their research, but nervous about continuing my faculty job responsibilities in addition to being director.

Q: What do you see as AUFSI’s main role within the university?
A: I see our role as promoting the research enterprise, whether it’s putting together interdisciplinary teams or disseminating research through media outlets. When you can get information to the media, it gains more recognition for researchers and in turn brings in more research opportunities.

Q: What has been the most rewarding part of this job?
A: I would say working with a variety of different people outside of my normal research partners and just having more opportunities, including more personal opportunities, because I interact with more people. Also, I’m learning about people doing research in areas like aquaponics … I’ve been able to see more areas of research, especially within College of Agriculture, but in other colleges, too.

Q: What has been the most challenging?
A: The balancing act has been the most challenging part – continuing my same teaching load and even picking up some classes, continuing with my research, and helping others with their research programs.

Q: What have you learned about yourself through this director’s position?
A: I’ve learned I need to tackle problems as they arise instead of waiting for them to resolve themselves. I’ve also learned that my natural conflict management style is just ignoring (the problem), and that’s not the way to be a good leader. I have begun being more proactive instead of procrastinating because now other people’s jobs rely on me… I have to respect their working hours and get things done at a reasonable time instead of continuing with my own previous middle-of-the-night working hours.

Q: What new projects or opportunities for collaboration are on the horizon for you and AUFSI?
A: I think there is an exciting opportunity for a “leafy greens” working group/partnership with Western Growers and U.S. Foods in response to the recent food safety concerns with romaine lettuce, in particular. A representative from U.S. Foods reached out to me and seems interested in me providing CAFO (concentrated animal feeding operation) expertise as it relates to safely growing leafy greens. I would also like to work with Auburn’s RFID (radiofrequency identification) lab as well as the Hunger Solutions Institute in the College of Human Sciences. Of course, we want to continue our strong partnerships with our Obesity, Aquaponics, Salmonella, and Antimicrobial Resistance Working Groups…we have stayed very busy writing grants for these groups this year, and I’m looking forward to finding out which ones were funded.
Working groups make wheels turn

Working groups are the foundation of the Food Systems Institute. They allow us to bring together faculty from different disciplines, primarily to pursue funding opportunities, but also to give them an identity and help them become familiar with the common threads in one another’s research. Funding agencies are almost insistent that the faculty members involved in interdisciplinary proposals are already part of a team that is working together. AUFSI is committed to providing a platform for these working groups.

Obesity Issues

The AUFSI Obesity Working Group focuses on obesity prevention. The purposes are networking, sharing expertise, and generating collaborative research proposals. The group is particularly interested in the high rate of obesity in Alabama. Kim Garza: kbl0005@auburn.edu

Aquaponics

The Aquaponics Working Group includes representatives from Tiger Dining as well as professors from fisheries, horticulture, and bio-systems engineering. Aquaponics combines aquaculture with hydroponics, or the practice of growing plants without soil. Terry Hanson: trh0008@auburn.edu

Food Entrepreneur

The Food Entrepreneur Working Group brings together faculty and others interested in helping budding food entrepreneurs. This group also plans AUFSI’s annual Food Entrepreneur Conference.

Jean Weese: weesesj@auburn.edu

Antibiotics Resistance

Members of this working group are interested in identifying alternatives to the nontherapeutic use of antibiotics in the raising of food animals such as cattle, poultry, and swine. Overuse of antibiotics is correlated with the appearance of antibiotic-resistant bacteria in the food supply. Sue Duran: duransh@auburn.edu

Salmonella Control

The Salmonella Working Group brings together faculty from the colleges of agriculture and veterinary medicine to explore the transmission and control methods of the foodborne bacteria Salmonella. Stuart Price: pricesb@auburn.edu

Food Defense

Criminals or terrorists could score a big victory by tampering with the U.S. food supply. This new group is zeroing in on research and education to address this potential threat. Bob Norton: nortora@auburn.edu

Animal Food Manufacturing, Quality and Safety

This group emphasizes education and training for all aspects of animal food manufacturing, worker safety, food chain safety and security, and regulatory compliance. Charles Starkey: cstarkey@auburn.edu

WHEELS IN MOTION (working groups in progress)

Food Waste/ Food Security

Amit Morey, AUFSI affiliate faculty member and poultry science assistant professor and extension specialist, is currently driving the effort to form a working group that will focus on mitigating food waste and, thus, improve food security in Alabama. With 19.2% of its population food insecure, Alabama ranks 2nd highest in this category in the U.S. The AU Hunger Solutions Institute is on board with the working group, and Morey also hopes to recruit other food scientists, technologists, social scientists and economists to help develop pragmatic solutions. Amit Morey: azm0011@auburn.edu

Cancer & Meat

New, limited studies have linked some types of cancer to processed meat and meat products. Morey and AUFSI are also collaborating to develop a working group that will bring together meat scientists and cancer biologists to conduct multi-disciplinary research to determine if there are any cancer-causing agents in meat products and, if so, how to make meat safer for consumers. Amit Morey: azm0011@auburn.edu
Over the last couple years, the Auburn University Food Systems Institute (AUFSI) has been in a state of transition in regards to our goals and center activities. AUFSI (previously a university “initiative”) materialized as an institute in 2013 upon receiving a multimillion dollar grant from the Food and Drug Administration (FDA) to participate in a consortium to create a variety of online FDA training materials primarily for food facility inspectors. During this grant period, AUFSI was largely focused on education and training, and spent most of its time engaged in outreach supported by the grant. AUFSI writers and budget specialists also spent time helping faculty put together other grant proposals, but since the FDA grant ended in 2017, grant writing has evolved into our primary task.

We work not only with College of Agriculture faculty, but we have formed long-lasting and productive relationships with “affiliate” faculty members in colleges and schools across campus. These successful relationships are the basis of the interdisciplinary working groups that define AUFSI (see Page 2).

Through our working groups, faculty members are able to strengthen connections and develop research ideas. In fiscal year 2018 alone, we helped these working groups write, budget, and/or submit 11 proposals totaling $13,770,492. Most of these submissions were to external, federal agencies, including a $10 million proposal to USDA Agriculture, Food and Research Initiative (AFRI) titled “Increasing Sustainability of Cotton and Peanut Production Systems in Humid Southeast.” This project team included faculty members in multiple AU colleges, including agriculture, engineering, and business. AUFSI also assisted with an international grant proposal as well as a record number of internal grant proposals. While most of these proposals were not funded on the first submission (at the time of publication, we had not received a decision on two) most of them received encouraging, productive feedback that will be invaluable as we revise and resubmit proposals in 2019. When a grant AUFSI assists with is funded, the institute receives a percentage of the indirect costs deducted from the award.

We also have at least two other newly established working group—Food Waste/Food Security and Cancer and Meat—with innovative project ideas that seem to align with the food and agriculture industry’s most current, pressing needs. We anticipate helping these groups become more organized and focused in the coming months so that they can apply for funding by late 2019.

In addition to receiving a portion of indirect costs from grants, AUFSI is also still supported by funding from the Alabama Agricultural Experiment Station (AAES) as well as by funds generated from various workshops and training efforts.
USDA-funded project helping make local foods safer

More and more, consumers want to know where their food comes from and want to purchase it locally if possible. In response to this movement AUFSI director Dr. Christy Bratcher has been leading a project that aims to improve food security and safety among small, local producers and vendors and, thus, sustain their viability. The $4 million project was funded by the USDA’s National Institute of Food and Agriculture, with the ultimate goal of creating a safer, more secure food chain.

Starting in 2012, Bratcher and her project team began investigating the operations of small-scale federally inspected regional operations, even smaller state-inspected regional processors, and very small local facilities. The biggest concern was that, in the very small local facilities, some carcasses tested positive for the pathogenic bacteria *E. coli* at the end of the harvest process (the final chilling step). Conversely, in the small and very small regional facilities, the team found no detectable *E. coli* at the end of harvest.

Because very small local facilities often do not have the resources or proper training to ensure totally safe food products, Bratcher’s team arranged a series of Alabama Cooperative Extension System (ACES) talks focused on sanitary equipment design geared specifically toward these producers. The team is also working with the AU Lambert Powell Meats Lab staff and a regional extension agent to develop a butchery school to train processors on proper sanitary design in facilities as well as provide general education on meat processing.

During the course of testing for *E. coli*, Bratcher’s team also found *Salmonella* in cattle areas on some small farms. Teaming up with other AU researchers and the USDA Agricultural Research Service, they investigated how the bacteria, typically associated with poultry, was spreading into cattle areas. They also determined that, in cattle, *Salmonella* can be transmitted from the gastrointestinal tract to atypical areas of the carcass such as lymph nodes and synovial fluid in joints, winding up in meat.

Meanwhile, Dr. Michelle Worosz, a co-investigator, is conducting surveys to gauge consumers’ preferences regarding where they buy their meat as well as their perceptions of the safety of local foods. These surveys are intended to acknowledge and address the sometimes-false idea that “local is safer” and contribute to the overall project goal of helping create a safer food supply. Survey results should be available in late 2019.

Food Defense group preparing to seek federal funding

Now that the Food and Water Defense Working Group has established a presence with its food defense blog and wealth of trade press articles, members will seek funding through the State Homeland Security Program and the Homeland Security National Training Program in the coming year.

Dr. Robert Norton, a microbiologist in the Department of Poultry Science and chair of the working group, is a long-time consultant to federal and state law enforcement agencies and the Department of Defense. Norton has published articles in *Food Safety* magazine and *Food Logistics*, among others. He has also written recently about agroterrorism for the *HDIAC Journal*, published by the Homeland Defense and Security Information Analysis Center.

Norton and Dr. Stephanie Ostrowski also oversee a blog that keeps food industry executives and the public apprised of threats to the U.S. and world food supply, ranging from food and water contamination to plant and animal diseases and weather crises that impact producers and consumers. Ostrowski, one of several working group members, is an associate professor of public health in the College of Veterinary Medicine who came to Auburn after retiring from the U.S. Public Health Service (USPHS).

The U.S. Department of Homeland Security has designated 16 “critical infrastructure” sectors considered vital to the country, with one of these sectors being food and agriculture.
Inspiring keynote speakers headline 2018 Food Entrepreneur Conference

The sixth installment of the Food Entrepreneur Conference, held March 21-22, 2018, hosted 53 aspiring and current food entrepreneurs eager to learn more about opening or growing their own food business. That’s the largest number of participants so far for the annual event, which is held in Auburn every spring and coordinated by AUFSI and the Alabama Cooperative Extension System (ACES).

Attendees were treated to an exciting lineup of current successful entrepreneurs who offered “real-life” advice for starting a food business, including keynote speaker Stacy Brown, co-founder of the wildly popular Chicken Salad Chick restaurants. Brown started out making and selling chicken salad from her own home, and now she has more than 80 restaurants throughout the Southeast. Robert Armstrong, founder of G Momma’s “Southern style bite-sized cookies,” gave the keynote address on day two of the conference. G Momma’s is based in Armstrong’s hometown of Selma—a decision he says he made to help support the town’s struggling economy and keep its rich history alive.

Both speakers were given overwhelmingly positive reviews by participants in post-conference evaluations, which described both Brown and Armstrong as inspiring and engaging.

Participants were also treated to a panel of five successful small-business entrepreneurs, who answered questions from a panel moderator and the audience about how they got their business started as well as their successes and missteps along the way.

Food industry experts from the Alabama Department of Public Health, Auburn University, and ACES discussed important business topics such as food safety regulations, product labeling, financing, and marketing. The conference wrapped up Thursday afternoon with breakout sessions on topics such as Cottage Food Law certification, catering/food service/bakery; food trucks; USDA meat products; and the innovative aquaponics industry.

The seventh annual Food Entrepreneur Conference is set for April 16-17, 2019, at CASIC.

AUFSI training held to rigorous IACET standards

Since AUFSI became an accredited provider of continuing education units (CEUs) through the International Association of Continuing Education and Training (IACET) five years ago, we have applied the association’s rigorous standards to both our online courses and face-to-face workshops.

Organizations with the IACET accreditation have an international benchmark of quality that includes course development, student and instructor reviews, institutional structure, clear chains of responsibility, and course evaluations that lead to changes in educational materials and methods as needed.

Some of AUFSI’s IACET-accredited opportunities include online food safety courses for food industry professionals and certification courses in programs such as Hazard Analysis and Critical Control Points (HACCP), designed to enhance the safety of meat and seafood products, and Better Process Control School (BPCS), which certifies supervisors involved in the manufacturing of low-acid and acidified foods.

AUFSI submitted the necessary paperwork for re-accreditation in December 2018.
Grant team assists in every stage of external proposal development

The Auburn University Food Systems Institute continues to work closely with its working groups, submitting or helping faculty across campus submit a total of 8 external grant proposals in 2018.

**PENDING**


Development and validation of a novel analytics-based multi-tier technology for the detection of woody breast in market broilers (USDA AFRI): Amit Morey (Poultry Science), Dianna Bourassa (Poultry Science), Ashish Gupta (Systems and Technology), and Emir Malikov (Ag Econ and Rural Sociology). $998,509.

Increasing Sustainability of Cotton and Peanut Production Systems in Humid Southeast. (USDA AFRI): William Batchelor (Biosystems Engineering), PI. $10,000,000.

**NOT FUNDED**


---

**AUFSI in third year of produce safety partnership with state**

AUFSI is in its third year of a five-year collaboration with the Alabama Department of Agriculture and Industries to develop a statewide Produce Safety Program that aligns with the Food and Drug Administration’s (FDA) nationwide Produce Safety Rule. The rule includes science-based minimum standards for the safe growing, harvesting, packing, and holding of fruits and vegetables.

Together, AUFSI and ADAI provide education, outreach, technical assistance, and training to farmers that handle produce covered under the rule. AUFSI’s main role is to develop the training and education materials by working closely with both ADAI and our partner, the Alabama Cooperative Extension System. The program includes regulator training to ensure long-term enforcement of the Produce Safety Rule in Alabama. ADAI and AUFSI are receiving funding annually from FDA for the project.

The team has been reaching out through many avenues, including extension programs and direct contact with farmers, to get farms ready for inspections that will start with the largest operations next year (2019). So far, over 200 farmers throughout the state have been trained through the program, but there are many farmers who still need training. The team taught classes in 2018 in Elba, Talladega, Selma, Moulton, Monroeville, Clanton, Tuskegee, Dothan, Gadsden and Mobile.

Prior to the mandated inspections, a team from AUFSI, ACES, and ADAI is holding On-Farm Readiness Reviews. These non-regulatory reviews will point out to farmers where they need to improve prior to their inspections. Any farm of any size can receive this review.

These efforts place the state of Alabama within the move toward a national integrated food safety system (IFSS) and effectively fulfill the requirements of FSMA. Other states are carrying out similar programs.
Aquaponics group entering new research phases

AUFSI’s Hydroponics and Aquaponics Working Group, which brings together researchers from fisheries, horticulture, biosystems engineering, and food science, continues to plot an aggressive path forward. Researchers met in November to outline key research questions and identify potential funding opportunities.

Aquaponics, combining aquaculture with hydroponics (growing plants without soil), has been called “the future of farming” because of its efficient use of water to grow both fish and produce.

Although the potential seems obvious, many questions remain about the profitability of a large-scale aquaponics system. And although consumers are willing to pay extra for high-quality local produce, the fish side of an aquaponics system struggles for profitability because of the predominance of cheap, imported seafood. The greenhouse side also faces challenges because of the cost of electricity, which limits the growth of “vertical farming” in urban locations; one proposed project would compare costs of vertical farming, greenhouse farming, and traditional farming.

In addition, Best Management Practices and safety standards for aquaponics operations haven’t yet been developed, so the group is working on both. Finally, working group members are interested in determining differences in requirements for an aquaponics system in the warm Southeast compared to other parts of the country. They are reaching out to fellow researchers at other institutions to form a multi-state research consortium.

The group received nearly $1 million in USDA funding last year and also has forged a working relationship with AU Tiger Dining and director of campus dining, Glenn Loughridge. A working aquaponics model at the E.W. Shell Fisheries Center a few miles north of Auburn’s campus provides fish and produce to AU Tiger Dining in return for ongoing financial support.

Growing strong: AUFSI connects with nonprofit

When College of Education professor Sean Forbes established his first school garden at Southview Primary School in Opelika in 2012, he had no idea it would have such an impact on Opelika communities. He primarily wanted to teach kids about the origins of their food. That was the start of O Grows, which focuses on making local produce available and accessible through a variety of food programs, including gardens at six Opelika City Schools, the Opelika Community Garden, and the Opelika Farmers Market. The produce is donated to the Community Market of the East Alabama Food Bank, and more than 20,000 of produce have been donated since 2012.

“The school garden spread to six (schools), then it spread to the Community Garden, then to the farmers market,” Forbes said. “We realized (school and community) are so connected.”

Other university faculty members and centers, including AUFSI, have supported O Grows. Forbes’ colleagues in education helped install the gardens, and other funding support has come from the Office of the Vice President for Outreach.

AUFSI affiliate faculty member Daniel Wells, assistant professor of horticulture, has lent his gardening expertise to the project.

“I have consulted with (Forbes) on his growing methods and what types of crops might work best for his situations,” Wells said.

Forbes says the school gardens are an outlet for hands-on educational activities that help students meet state curriculum standards.

The Opelika Farmers Market, located at the intersection of the Carter and Jeter communities in Opelika. According to the U.S. Census 2010, these two neighborhoods have long been among the most vulnerable to food insecurity in Lee County. Forbes says the community garden is part of solution, offering a financially feasible opportunity for low-income residents to put more fruits and vegetables on the table.

Garden plots are available for Carver and Jeter residents through a free, first-come-first-serve signup. Plots are also available for other area residents for a nominal fee. O Grows staff and volunteers are on-hand every weekend to assist gardeners.

The Opelika Farmers Market,
which O Grows began managing in 2016, is also located in the Southside Center in the property adjacent to the community garden, giving nearby residents access to a variety of wholesome foods.

The impact of these community food security efforts has not yet been as significant as Forbes would like because of the small number of residents involved. AUFSI is assisting Forbes in seeking a federal grant to help him organize a community food summit that would further engage members of the Carter and Jeter neighborhoods, specifically, as well as influential community members and university faculty. The purpose of the summit would be to develop a food project plan that would provide a “blueprint” for long-term community food security and sovereignty, Forbes said.

Forbes and Wells are also interested in developing a project that focuses on using aquaponics (using water to grow both produce and fish) to help diminish food insecurity in low-income neighborhoods like Carter and Jeter. They have just begun discussions and are planning to seek funding for this project next year.

---

**Staying on Track**

*Every year, AUFSI staff members meet to update our goals and objectives, ensuring they are still relevant, innovative, and attainable.*

**Goal 1**

Maintain infrastructure to support interdisciplinary research, teaching, and training collaborations, and external partnerships with academia, industry, government and consumers.

*Objectives:*

- Establish an external advisory board to provide feedback and guidance to AUFSI.
- Update and maintain an interdisciplinary, cross-departmental venture for affiliate faculty and working groups.
- Maintain a cadre of content experts (affiliate faculty) in core science and technology focus areas.
- Conduct an annual Needs Assessments among affiliate faculty, working group members, advisory board, industry, government, and consumers.

**Goal 2**

Ensure the protection of public health by conducting and supporting research on pathogens and advancing food systems’ technology.

*Objectives:*

- Facilitate and pursue collaborative funding opportunities.
- Develop advanced tools, practices, and interventions to reduce foodborne hazards in every part of the food chain.

**Goal 3**

Promote food safety practices to ensure high quality and sustainable food systems.

*Objectives:*

- Maintain our Food Entrepreneur Network to help establish innovative, sustainable businesses.
- Develop and update existing credit and noncredit education for adult learners in food systems-related disciplines.

**Goal 4**

Facilitate and make tangible contributions to national, regional, and state food safety efforts through interdisciplinary research, outreach and educational collaborations and external partnerships with academia, industry, government and consumers.

*Objectives:*

- Implement marketing strategies for external licensing and commercialization of products.
- Interact and participate with the local, state, national and international food system communities.
- Determine impact of attendance at regional and national expositions.

**Goal 5**

Inform and contribute to the legislative and regulatory creation of standards relating to food systems.

*Objective:*

- Build relationships with representatives of local, state and federal government agencies that impact the food system.
Dr. Christy Bratcher became director of AUFSI in September 2017. She was recently promoted to professor in the Department of Animal Sciences, and her primary research interests are food safety of processed meats, pre- and post-harvest meat animal food safety, and consumer acceptance of niche market meat products.

Dr. Jean Weese became associate director of AUFSI in March 2016. As food safety specialist for the Alabama Cooperative Extension System, her role includes leadership of the Entrepreneur Working Group; and shared leadership roles in outreach and food safety.

Regina Crapps, academic program administrator, holds a degree in human resources from Auburn University-Montgomery and an MBA from the University of Phoenix. She handles registration, payment for classes, details of delivering course materials, providing information for students, and calculating CEUs.

Savannah Mehren is the AUFSI contracts and grants specialist. She assists with the management, acquisition, dissemination, and reporting of sponsored program funds. She has extensive experience managing the dissemination of grant funds. She has a bachelor's degree in health education from UAB.

Jacque Kochak, communications specialist, works on grants proposals and communications projects. An award-winning writer and editor, her background is in newspapers, the trade press, and association management. Kochak holds a degree from the University of Kansas.

Karen Hunley, communications specialist, performs grant writing and communications projects. She holds a master's degree in technical and professional communication as well as a bachelor's degree in journalism, both from Auburn. Her background includes positions as a communications specialist and journalist.

Staff prepares for first grant-writing workshop

The first AUFSI Grant Writing: The Essentials workshop will be held Friday, Feb. 15, 2019 at CASIC, aimed primarily at nonprofit organizations, municipal and state agencies, educators, and small businesses looking for funding to support programs and specific projects. Topics will include finding grant opportunities that align with the organization's project goals, communicating project ideas clearly and concisely, improving writing mechanics (grammar, syntax, organization), following proposal guidelines, budgeting, and more.

Several sponsors have come on board to help promote the event, including the City of Opelika, the Opelika Police Department, the Opelika Fire Department, Auburn City Schools, and Lee County Emergency Management Agency. We are confident that our experiences with faculty proposals and the meticulous extramural grant application process have prepared us to host our own grant-writing workshop.

The cost of the workshop will be $125 until one week before the event, at which point the cost will increase to $150.
AUFSI Affiliated Faculty

Affiliate faculty contribute to AUFSI’s collaborative efforts by taking part in one or more working groups and working with us to submit grant proposals.

SONIA MOISA BACHAMP is an assistant professor of animal sciences. Her research goals include defining potential markers for marbling deposition and growth efficiency in beef cattle and determining epigenetic regulators that might inhibit or enhance muscle growth and adipose tissue deposition in cattle.

DIANNA BOURASSA is an extension specialist and assistant professor in the Department of Poultry Science. Her research focuses on poultry processing, microbiology, and food safety.

ONIKIA BROWN is an associate professor and extension nutritionist in the Department of Nutrition, Dietetics, and Hospitality Management. Her research includes using Community Based Participatory Research to examine the nutritional determinants, consequences, and prevention of diet-related health disparities in certain populations.

DONNA BURNETT is an assistant professor of nutrition in the College of Human Sciences. Her expertise includes nutrition counseling, professional practice in dietetics and dietetics education, and links between childhood experiences and health outcomes.

ZHONGYANG CHENG, a materials engineering professor in the College of Engineering, is assistant director of the Center for Detection and Food Safety in the College of Engineering.

DAVID CLINE is an extension specialist in the School of Fisheries, Aquaculture, and Aquatic Sciences. His areas of expertise include catfish aquaculture, caged fish production, recreational pond management, small scale marketing, aquatic plant management.

WILLIAM DANIELS is an associate professor of marine and freshwater aquaculture for the School of Fisheries, Aquaculture, and Aquatic Sciences. Dr. Daniels’ research focuses on catfish aquaculture and alternative production systems and species.

ALLEN DAVIS is an alumni professor of aquatic animal nutrition in the School of Fisheries, Aquaculture, and Aquatic Sciences. He seeks to expand our understanding of the nutritional requirements of species of economic importance and to facilitate the development of commercial rations for use in supplemental feed systems.

SUE DURAN, professor and clinical pharmacist in the College of Veterinary Medicine, researches new products for treating diseases in food animals and works with veterinarians to study proper dosages and withdrawal times to ensure meat and milk safety.

MISTY EDMONDSON is an associate professor in the College of Veterinary Medicine, where her duties include management of clinical hospital cases, didactic teaching, research, and outreach. Her major interest is theriogenology of cattle, small ruminants, and camels.

KIMBERLY GARZA is an assistant professor in the Department of Health Outcomes Research and Policy in the Harrison School of Pharmacy. Her research involves application of behavioral economic theory to study preventative health behaviors, including medication adherence, diet, and physical activity.

TERRY HANSON is a professor and extension specialist in the School of Fisheries, Aquaculture, and Aquatic Sciences. His extension program includes the “Pond to Plate” project that addresses needs of the U.S. and Alabama farm-raised catfish industries.

TUNG-SHI HUANG is a professor of food science in the Department of Poultry Science. He studies food safety and development of biosensors to detect food-borne pathogens.

KATHY LAWRENCE is a professor of entomology and plant pathology. Her areas of expertise include soil borne and foliar fungal diseases.

KEN MACKLIN is an associate professor and Extenden...
sion specialist in the College of Agriculture's Department of Poultry Science. His research interests include the reduction of foodborne bacteria through the use of feed additive and the safe handling and disposal of poultry litter.

EMEFA MONU is an assistant professor of microbiology. Her goal as a researcher is to improve food security through increasing the microbiological safety and shelf life of food.

AMIT MOREY, assistant professor and Extension specialist in poultry science, is interested in food safety, shelf-life, post-harvest processing technologies, product development and storage, and spoilage microbiology.

ANNIE NEWTON KIRBY is the dietitian in the AU Pharmaceutical Care Center. She is also an assistant professor at the Edward Via College of Osteopathic Medicine and has been a registered dietitian for five years. Annie's current research interests include preventative lifestyle behaviors.

BOB NORTON, a professor in the Department of Poultry Science, is an expert at data mining and database management.

STEPHANIE OSTROWSKI is an associate professor of public health in the Department of Pathobiology in the College of Veterinary Medicine. Her research interests include public health/one health, herd health; food animal medicine and surgery; agricultural sustainability; epidemiology; emerging infectious diseases; and more.

STuart PRICE is an associate professor in the College of Veterinary Medicine's Department of Pathobiology. His lab studies the molecular basis of bacterial pathogenesis, with a focus on pathogens that cause foodborne illness.

ELIZABETH SCHWARTZ is an assistant professor of biological sciences in the College of Sciences and Mathematics. Schwartz has a longstanding interest in the foodborne bacterial pathogen *Listeria monocytogenes* and in the innate immune responses elicited by this organism.

MANPREET SINGH, a microbiologist, is an associate professor of food science at the University of Georgia-Athens. He formerly was an assistant professor in Auburn's Department of Poultry Science.

CHARLES STARKEY is an assistant professor in the Department of Poultry Science. His research focuses on connecting all aspects of animal food ingredient characteristics, dietary formulations, animal food manufacturing techniques, live animal performance, and gastrointestinal tract physiology and health.

BILL WALTON is an associate professor and extension specialist in the School of Fisheries, Aquaculture and Aquatic Sciences. His work focuses primarily on issues related to marine invertebrate aquaculture as well as fisheries management and restoration.

CHENGMING WANG is a professor in the Department of Pathobiology. His research interests include molecular diagnostics, pathogenesis of Chlamydia, and transmission mechanisms of vector-borne agents with zoonotic importance.

CHIH-HSUAN WANG, assistant professor in the College of Education, is focused on educational research, evaluation, measurement, and statistics.

YIFEN WANG is a professor in the College of Engineering's Department of Biosystems Engineering. He is interested in the applied and fundamental study of food engineering and food safety.

DANIEL WELLS is an assistant professor of horticulture. He focuses on specialty crop production systems in Alabama.

JIM WITTE, a professor in the College of Education, is interested in the development of training programs.

MICHELLE WOROSZ is an associate professor in the Department of Agricultural Economics and Rural Sociology and researches economic viability in rural settings.

PEI XU is an assistant professor of business analytics in the College of Business. She brings expertise in “big data” to our faculty with the ability to effectively evaluate a wide variety of business issues by using data to apply quantitative techniques for decision-making.
Christy Bratcher, Ph.D., Director
559 Devall Dr., 2nd floor • Auburn, AL 36849

Phone: (334) 844-7456
Fax: (334) 844-0452
aufsi@auburn.edu

www.aufsi.auburn.edu
www.auburn.edu

Auburn University is an equal opportunity educational institution/employer.