INTERNATIONAL WORKING GROUPS

Facilitating international research, outreach, and engagement at MSU
The International Institute’s International Research Development unit works with Mississippi State University faculty in all fields of study to facilitate new international interdisciplinary research and outreach projects and provide administrative support for ongoing efforts. The unit serves as the university repository of knowledge regarding international funding programs and opportunities and maintains contacts with program officers and officials at international funding agencies and collaborating institutions. The unit provides seed funding for research and outreach collaborations through the International Working Group (IWG) grant program and actively promotes and advocates IWG projects.

Engaging in such research and outreach activities and maintaining relationships abroad helps expand MSU’s international reputation.

INTERIM EXECUTIVE DIRECTOR OF THE INTERNATIONAL INSTITUTE

Jon Rezek is interim associate vice president for international programs at Mississippi State. He oversees international partnerships and agreements while working to expand the university’s international interdisciplinary research and outreach. MSU has developed partnerships with the World Food Programme and United Nations’ Food and Agriculture Organization, as well as more than 75 agreements with universities in Africa, Asia and Latin America.

DIRECTOR OF INTERNATIONAL RESEARCH DEVELOPMENT

Shauncy Hill directs international research development for the International Institute. With more than 18 years’ experience in research administration and financial management of funded projects, she works to assists MSU researchers and collaborating scientists in international partner organizations with their proposal submissions to U.S. and international funding agencies and programs.

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We participate in a range of projects from research to outreach and service.

In 2015, the International Institute awarded 15 faculty grants as part of its inaugural International Working Group program. Successful proposals coincided with Mississippi State University’s strategic research focus areas, including materials science and engineering, environmental sustainability, food safety and health and international development. Awards ranging from $2,500-$5,000 were designed to stimulate international interdisciplinary research and outreach, while also serving to catalyze MSU’s partnerships with other universities and organizations abroad. Successful partnerships have been formed with Makerere University in Uganda, University of Puerto Rico, Seoul National University in South Korea, Maejo University in Thailand and South Africa’s University of the Free State.
Disease transfer between animals, as well as between animals and humans, represent a significant economic and public health problem in many parts of the world. Unfortunately, standard epidemiology explanations relying on infection transmission models often do not fit the local context in many developing countries.

Researchers in veterinary medicine, animal sciences, political science and agricultural economics are developing a holistic systems model to help explain disease transfer among livestock in Southern Africa. By incorporating socio-economic variables into dynamic models of animal and zoonotic disease transfer, scientists hope to improve disease modeling in societies characterized by limited state capacity, unregulated movement of human and animal populations and structural conditions correlated with higher risk. The project will focus on South Africa, Namibia, Botswana and Mozambique, which are among the largest producers of commercial livestock on the continent and home to closely interdependent markets.
Coordinator Bob Wills is a professor in MSU’s Department of Pathobiology and Population Medicine. An Iowa State University doctoral graduate, he is a researcher in ecological epidemiology, with an emphasis on transmission of pathogens, and in analytical epidemiology with emphasis on identification and analysis of risk factors. Wills also studies the interaction of pesticides and human health and his research has appeared in the Zoonoses and Public Health, Avian Diseases, and Epidemiology and Infection.

Brian Shoup is an associate professor in the Department of Political Science and Public Administration at MSU. He is a political science doctoral graduate of Indiana University, with a focus on comparative politics and public policy. Shoup’s primary research interests include ethnic conflict, state and nation-building and sub-Saharan African politics. His work has been featured in Perspectives on Politics, Democratization, Journal of Democracy, and Commonwealth and Comparative Politics.

Brian Rude is a professor and graduate coordinator in MSU’s Department of Animal and Dairy Sciences. An Auburn University doctoral graduate, his research includes beef cattle nutrition, forage utilization, by-product feeding and mineral metabolism. Rude’s research has appeared in the Journal of Dairy Science, The Professional Animal Scientist, the Journal of Nutrition, and the Journal of Near Infrared Spectroscopy.

Dirk Strydom heads the Department of Natural and Agricultural Sciences at South Africa’s University of the Free State in Bloemfontein. A UFS doctoral graduate in business administration and management, he has research interests in agricultural economics and agri-business.
Deforestation, water quality deterioration from increased fertilizer and pesticide usage, and high sediment loading from land use change have adversely impacted the livelihoods of thousands of farmers and fishermen living in the complex ecosystems of South Asia. Researchers in geosciences, plant and soil science and agricultural engineering are using remote-sensing techniques, water quality analysis and watershed analysis to measure the impacts of unsustainable agricultural practices on food production, food safety and security, and environmental quality in India’s Chilka Lake and Bangladesh’s Sundarbans mangrove ecosystem. A satellite remote sensing-based operational platform will be developed and used to measure harmful algal blooms, microorganisms and metals, identify the sources of these pollutants, and investigate the dynamics of agricultural practices.
Coordinator Shrinidhi Ambinakudige is an associate professor of geography and geographic information systems in the Department of Geosciences at MSU. A Florida State University doctoral graduate, he is interested in the human dimensions of global climate change, carbon sequestration and agro-forest ecosystems. Ambinakudige also studies poverty, livelihood vulnerability and migration in the U.S and the developing world.

Padmanava Dash is an assistant professor of remote sensing in MSU’s Department of Geosciences. A Louisiana State University doctoral graduate, he specializes in ocean color remote sensing, limnology, harmful algal blooms, harmful microorganisms, toxic metals, nutrient flux, biological oceanography and ocean biogeochemistry. His research addresses the conditions in which water-quality issues develop, assessing their ecological impacts and developing mitigation management strategies. Dash’s current research is focused on Mississippi’s Inland lakes and bays, as well as the northern Gulf of Mexico.

Raja Reddy is a research professor in the Department of Plant and Soil Sciences at MSU. A doctoral graduate of India’s Sri Venkateswara University and a specialist in environmental plant physiology, he researches environmental controls of plant growth and development, crop simulation modeling and applications, and remote sensing applications in natural resource management. Reddy’s work has appeared in the International Journal of Plant Production, the Agronomy Journal, the Scientia Horticulturae and American Journal of Experimental Agriculture.

Prem B. Parajuli is an assistant professor in the Department of Agricultural and Biological Engineering at MSU. A Kansas State University doctoral graduate, his research interests include watershed and water quality modeling including elements such as flow, sediment, pesticides, nutrients and pathogens. He also has interests in climate and land-use change, feedstock engineering, bio-energy, carbon sequestration, crop modeling at field and regional scales and remote sensing.
As a need for lighter but stronger components continues to increase, understanding and modeling of such materials as aluminum metal matrix metallic composites (MMMC) is becoming a priority for mechanical engineers and materials scientists. The availability of high-performance computational platforms and emergence of high-fidelity numerical simulations allow simulation-based designs to shorten times and reduce costs of MMMC parts and components. Researchers in mechanical engineering, biological sciences and mathematics are developing the foundations for understanding the fundamental failure mechanisms of these ductile metals under varying strain conditions. Working with counterparts at the Korean Institute of Industrial Technology, innovative aluminum MMMCs will be manufactured by introducing unique compaction and extrusion techniques at the South Korean facility, while modeling and computational simulation will be performed at MSU’s Center for Advanced Vehicular Systems.

**Coordinator Hongjoo Rhee** is an associate director of the Center for Advanced Vehicular Systems at Mississippi State, as well as an associate research professor for the center’s Computational Engineering Mechanics and Materials science thrust. A Michigan State University doctoral graduate in chemical engineering and materials science, he is a researcher in bio-inspired materials design, third-generation advanced high-strength steels design and high-strain rate material testing. Rhee’s work has appeared in the *Journal of Mechanics in Medicine and Biology*, the *Journal of Biomedical Engineering*, the *Journal of Mechanical Behavior of Biomedical Materials* and *Journal of Electronic Materials*.

**Roger King** is a Giles Distinguished Professor at Mississippi State and director of its Center for Advanced Vehicular Systems. A doctoral graduate of the University of Wales, he leads an interdisciplinary research center whose engineering, research, development and technology-transfer teams are focused on enhancing human and payload mobility. King has received funding from the National Aeronautics Space Administration, National Oceanic and Atmospheric Administration, U.S. Department of Energy and Mississippi Development Authority.

**Wilburn Whittington** is a research associate at Mississippi State’s Center for Advanced Vehicular Systems. A mechanical engineering major who joined the university after graduation, he has a background in fabrication and experimental design applied to high-rate phenomena, automotive component testing and materials characterization. As a student, he was honored by the Bagley College of Engineering as the 2010 Undergraduate Researcher of the Year.

**Hwi-Jun Kim** is a principal researcher at the Korea Institute of Industrial Technology (KITECH) in South Korea. A metallurgical engineering doctoral graduate of Yonsei University, he conducts research in alloy design, liquid shaping and high-density consolidation of powders in alloy systems for amorphous and soft magnetic materials. Kim works for the Liquid Processing and Casting Technology R&BD Group at KITECH’s Incheon Regional Division.
Many food imports, including rice, baked goods and seafood from farms and capture-fisheries, are detained by the U.S. Food and Drug Administration because of deficiencies in wholesomeness and product safety. Common detentions involve salmonella contamination resulting from poor handling and temperature abuse along the food-delivery chain. Researchers in the food and biological sciences are partnering with colleagues at universities in Thailand to enhance institutional and human capacities in conventional detection methods, both for salmonella in foods and the environment, and in molecular methods for detection and identification of pathogens. As part of the project, environmental and food samples will be coded and analyzed for indicator microorganisms, salmonella and other pathogens. The scientists and students then will examine possible sources and prepare concepts for prevention.

**FOOD SAFETY ENHANCEMENT THROUGH MOLECULAR & CONVENTIONAL DETECTION METHODS**

Coordinator Juan L. Silva is a professor and graduate coordinator for Mississippi State’s Department of Food Science, Nutrition, and Health Promotion. A doctoral graduate of the university, his research focus includes quality evaluation and optimization of foods, food safety systems development and evaluation, food product functionality and byproducts utilization. Silva’s investigations have received funding from the U.S. Department for Agriculture Food Safety and Inspection Service, Mississippi Department of Agriculture and Commerce, National Oceanic and Atmospheric Administration and U.S. Agency for International Development.

Taejo Kim is an assistant research professor with Mississippi State's Department of Food Science, Nutrition and Health Promotion. A doctoral graduate of the university, he conducts research in the development of rapid and easy-to-use detection kits for foodborne pathogens and bacterial attachment strength on food-processing surfaces. Kim’s research has appeared in the *Journal of Food Sciences, Journal of Aquatic Food Product Technology, Journal of Food Processing and Preservation* and *Journal of Food Protection*.

Janet Donaldson is a professor the Department of Biological Sciences at Mississippi State. A biology graduate of the university, she has research interests in medical and environmental bacteriology, specifically in biofuel production. Donaldson's research has appeared in the *Journal of Proteome Research, Journal of Microbiology* and *Journal of Applied Poultry Research*.
Bio-inspired materials are at the forefront of state-of-the-art research into the design of helmets, body armor and other protective gear. The biological damage caused by traumatic brain injuries may be assessed by observing the change in the geometry of the brain’s neuron cells. Image processing and analysis in bio-inspired materials design still is, however, in a nascent stage. Researchers in mathematics, biological engineering and computer science are analyzing images from bio-inspired materials to better understand the mechanisms of damage and design better helmets and other protective gear.

Coordinator Hyeona Lim is an associate professor in the Department of Mathematics and Statistics and associate director at MSU’s Center for Computational Sciences/High Performance Computing Collaboratory. A mathematics doctoral graduate of Michigan State University, she has research interests in numerical analysis, scientific computation, image processing, wave propagation, materials science and inverse problems. Lim’s research has appeared in the Journal of the Mechanical Behavior of Biomedical Materials, Journal of Systemics, Cybernetics and Informatics and International Journal of Theoretical Physics.

Lakeshia Williams is an associate professor in the Department of Agricultural and Biological Engineering at Mississippi State. A biomedical engineering doctoral graduate of the university, she has research interests in the hierarchical nature of biological tissues from nanoscale to microscale levels. Williams’ research has appeared in the Journal of Biomechanics, the Journal of the Royal Society Interface and Journal of Biomechanical Engineering.

Jun Liao is an associate professor in the Department of Agricultural and Biological Engineering at MSU. An applied biomedical engineering doctoral graduate of the Cleveland Clinic Foundation at Cleveland State University, his research interests involve tissue biomechanics, computational simulation and tissue engineering. Liao’s work has appeared in the Journal of the Mechanical Behavior of Biomedical Materials, Acta Biomaterialia, Annals of Biomedical Engineering and Journal of Biomechanics.

Myungjoo Kang is a professor in the Department of Mathematical Sciences department at Seoul National University in South Korea. A University of California, Los Angeles doctoral graduate, his research interests include numerical analysis, image processing and computation fluid dynamics. Kang’s research has appeared in the Journal of the Korea Society of Mathematical Education, the Journal of the Korean Society for Industrial and Applied Mathematics and Journal of Scientific Computing.
Recent reports indicate that more than 9 percent of the U.S. population is diagnosed with diabetes and evidence suggests an observable relationship between diabetes incidence and selenium deficient land, especially in the South. U.S. Researchers in nutrition, basic sciences, and mathematics and statistics are investigating the link between selenium deficiency and diabetes incidence in detail. To do so, they will test for diabetes hot spots after adjusting for demographic covariates such as age, race and sex. By combining data on selenium, diabetes and dioxin, the group—including members from Taiwan’s National Pingtung University of Science and Technology—will investigate linkages through environmental factors experimentally, mechanistically and physiologically.

Coordinator Wen-Hsing Cheng is an associate professor in the Department of Food Science, Nutrition and Health Promotion at Mississippi State. A Cornell University doctoral graduate, he has research interests in molecular nutrition, aging and age-related disorders and obesity and energy metabolism. Cheng has received funding from the U.S. Department of Agriculture and the United State-Israel Agricultural Research and Development Fund. His research has appeared in the *Journal of Nutritional Biochemistry*, *Journal of Agriculture and Food Chemistry* and *Journal of Biological Chemistry*.

Chinling Wang is an associate professor in the Department of Basic Sciences of Mississippi State’s College of Veterinary Medicine. A University of Georgia doctoral graduate, she has research interests in bacterial typing, rapid detection, functional genomics, proteomics and bacterial pathogenesis. Wang has received funding from the U.S. Department of Agriculture’s Cooperative State Research Service, Current Research Information System and Agricultural Research Service, and Eli Lilly Pharmaceutical Company. Wang’s research has published in *Applied and Environmental Microbiology* and *FEMS Microbiology*.

Tung-Lung Wu is an assistant professor of statistics in MSU’s Department of Mathematics and Statistics. A University of Manitoba doctoral graduate, he has research interests in boundary crossing probability, group sequential analysis, distributions of runs and patterns, quality control, cluster detection and hypothesis testing for high-dimensional data. Wu’s research has appeared in the *Journal of Applied Probability, Methodology and Computing in Applied Probability* and *Annals of the Institute of Statistical Mathematics*.

Chi Yu is an associate professor with the Department of Animal Science at National Pingtung University of Science and Technology in Taiwan. A National Taiwan University doctoral graduate, she has research interests in the evaluation of environmental toxicants and feed additives on growth performance, immune response and gene expression in poultry. Dr. Yu’s research has appeared in the *International Journal of Animal Biosciences*, the *Journal of Nanotechnology* and *Animal Science Journal*.
Despite the continued growth of the Middle East as an area of significant global importance, students at universities in the mid-South continue to have few opportunities to learn about the Middle East, North Africa, and neighboring regions. Faculty across colleges and departmental units at MSU, including Anthropology and Middle Eastern Studies, Classical and Modern Languages and Literatures, Landscape Architecture, Philosophy and Religion, Sociology, and AFROTC, are working together to change this by introducing an interdisciplinary Middle Eastern Studies minor at MSU. This minor, which teaches students about the history, archaeology, cultures, religions, and peoples of the Middle East, serves as the only programmatic offering in Middle Eastern Studies in Mississippi. The working group is also developing research collaborations and institutional connections with universities across the Middle East and Mediterranean regions.
Coordinator Kate McClellan is an assistant professor in the Department of Anthropology and Middle Eastern Cultures with a doctorate from the University of Michigan-Ann Arbor. McClellan has conducted research in Syria, Jordan, and Qatar. Her current project, funded by the National Endowment for the Humanities and American Center of Oriental Research, explores the ethics of human-animal welfare and wildlife protection in Jordan.

Michael Galaty is professor and Department Head in the Department of Anthropology and Middle Eastern Cultures. With a doctorate from the University of Wisconsin-Madison, Galaty directs archaeological projects in Albania and Greece that focus on the archaeology of complex societies and state formation. Galaty’s research has been funded by the National Science Foundation and Wenner-Gren Foundation. In 2011 he was named one of nine academic trustees for the Archaeological Institute of America.

Jimmy Hardin is an MSU assistant professor in the Department of Anthropology and Middle Eastern Cultures. Hardin received his doctorate in Near Eastern Archaeology from the University of Arizona. He specializes in the Bronze and Iron Age cultures of ancient Syria-Palestine, and directs archaeological projects at sites across Israel. Hardin is an active member of the American Schools of Oriental Research, and conducts field schools for graduate and undergraduate students focusing on Near Eastern Archaeology. His work has appeared in numerous publications.

Lynn Holt is professor in the Department of Philosophy and Religion and serves as Interim Head in the Department of Classical and Modern Languages and Literatures. With a doctorate from Vanderbilt University, Holt’s research centers on the historiography of reason and intellectual achievement, and has recently turned to intellectual virtuosity in diverse practices such as experimental psychology, architecture, archaeology, and astronomy. His recent work has appeared in The Philosophical Forum and Journal of International Political Theory.
COMPARATIVE RACIAL RECONCILIATION

Through implementation of the Civil Rights Act in 1964, the U.S. began to systematically dismantle a system of segregation. In South Africa, however, the apartheid system was abolished only in 1994, as the country worked to establish a democratic society through free elections and the adoption of a newly drafted constitution. While both countries have implemented institutional changes to establish free and more fully participatory democratic societies, political scientists and critical race scholars agree that day-to-day experiences of citizens in both nations remain greatly scripted by structures of racial division and de facto discrimination. Both globally and within each country, there is a continuing need to enhance the roles of participatory democracies, societal institutions and economic systems that create circumstances and incentives to protect human dignity, equity and economic futures. Researchers in political science, economics, history, African American studies, sociology and English are utilizing social sciences, history, literature and the arts to describe and evaluate the experiences of apartheid in the past as well those still persistently appearing in the present. Even as each country attempts to move from systematic discrimination and exclusion to inclusion and empowerment, our researchers engage in comparative work to understand various processes of “racial reconciliation” in both countries while also charting continued and often renewed configurations of racialized social stratification, as well as the national and global imaginaries that engender the material conditions of peoples’ everyday lives.

Coordinator Andrea Spain is an assistant professor in the Department of English at Mississippi State. A University of Buffalo doctoral graduate, she has research interests in late 20th century and contemporary postcolonial literature, with a focus on post-apartheid South African literature and culture. Spain has been published in the literary journals *Trickhouse, Bombay Gin* and *Modern Fiction Studies*.

Stephen Middleton is a professor in Mississippi State’s Department of History and director of the university’s African American Studies Program. A Miami University doctoral graduate, his research interests include race and the American legal system. Middleton is the author of several books, including *The Black Laws: Race and the Legal Process in Ohio*, *Black Congressmen during Reconstruction: A Documentary Sourcebook* and *The Black Laws in the Old Northwest: A Documentary History*.

Louis Strydom is an officer in the Center for Teaching and Learning at the University of the Free State in Bloemfontein, South Africa. Holding a UFS master of social science degree, she has an interest in understanding the relationship between optimism and job satisfaction among special-education teachers. Strydom’s research has appeared in the *South African Journal of Education*.

Donald Shaffer is an associate professor in the Department of English at Mississippi State and member of the university’s African American Studies program. A University of Chicago doctoral graduate, he has research interests in interracialism and identity politics in African American literature of the 19th and 20th centuries. Shaffer has presented his work at the Southern Conference on African American Studies and the Midwestern Modern Language Association.
In Uganda and many other parts of Africa, primary- and secondary- school retention rates for girls is quite low, leading to their lack of eventual educational and professional opportunities. Much of the gender gap in retention rates is related to cultural attitudes associated with menstruation and a lack of low-cost, hygienic sanitary pads. Researchers in economics, population medicine, anthropology and human sciences are teaming with counterparts at Makerere University in Uganda and private non-governmental organizations to help empower rural women with entrepreneurial skills to produce and market low-cost sanitary pads in their communities. While appropriate production technology has been developed by one group of rural women, they currently lack business and marketing skills. Also, social constraints have hampered marketing of the pads. The capacity-building components of this project help both to empower women and enable them to fully engage in critical economic, civic and educational activities that could have profoundly positive, long-term impacts.

Coordinator Meghan Millea is a professor with the Department of Finance and Economics at Mississippi State. A University of Nebraska-Lincoln doctoral graduate, she has research interests in labor productivity in various institutional settings, labor mobility and economic education pedagogy. Millea’s research has appeared in the Journal of Economic Education, Journal of Engineering Education and Journal of Cooperative Education and Internships.

Kathleen Ragsdale is an associate research professor with Mississippi State’s nationally recognized Social Science Research Center. A University of Florida doctoral graduate, she has research interests in health disparities among minority and vulnerable populations in the U.S. and abroad. Ragsdale’s research has appeared in the Journal of Health Disparities Research and Practice, Journal of School Health and Journal of Nutrition of Nutrition Education and Behavior.

Susan Seal is an assistant professor in the School of Human Sciences at Mississippi State. A doctoral graduate of the university, she has research interests in international agricultural and extension education. Seal is working closely with the United Nations’ Food and Agriculture Organization on extension systems evaluation. She is the author of Stinging the Natives and her research has appeared in the Journal of Animal Science and other publications.

Ruth Muwazi is an associate professor in the College of Animal Resources, Veterinary Medicine and Biosecurity at Uganda’s Makerere University. A doctoral graduate of the university, she has research interests in community development and anatomical sciences. Muwazi’s research has been published in Ornithology, as well as the African Journal of Ecology, Uganda Veterinary Journal and African Journal of Biomedical Sciences.
WATER QUALITY PROTECTION FROM AGRICULTURE
NUTRIENT POLLUTION

Nutrient runoff continues to be a major cause of water quality impairment around the world. Minimizing agricultural, non-point source pollution of both surface and ground water is a policy goal important to maintaining sustainable agriculture while protecting soil and water resources. Researchers in civil and environmental engineering, plant and soil sciences and wildlife, fisheries and aquaculture are collaborating with colleagues at the University of Puerto Rico to quantify the effects of agricultural production on surface and ground water. They also are working to design and evaluate research-based Best Management Practices at field and watershed levels, assess social and economic factors that limit adoption of these practices and conduct extension and outreach programs to educate producers and community leaders. Complementary research and outreach will take place in Mississippi and Puerto Rico.

Coordinator John J. Ramirez-Avila is an assistant research professor in the Civil and Environmental Engineering Department at Mississippi State. A doctoral graduate of the university, he has research interests in soil and water quality, soil and water management and conservation, soil erosion, nutrient transport from soils and watersheds, nutrient management, stream bank erosion, suspended sediment transport, channel evolution, and channel and watershed modeling. Ramirez-Avila’s research has appeared in the Journal of Environmental Quality, Journal of Agriculture of the University of Puerto Rico and Canadian Journal of Soil Science.

J. Larry Oldham is an extension professor with MSU’s Department of Plant and Soil Sciences. A University of Minnesota doctoral graduate, he has research interests in soil fertility, soil management and conservation, and soils and environmental quality. Oldham has received funding from the Natural Resource Conservation Service at the state and national levels. He has published numerous Extension materials in the Journal of Extension. Extensive collaborative work has appeared in the Agronomy Journal, Nutrient Cycling in Agroecosystems, Journal of Soil and Water Conservation, Science of the Total Environment, and Journal of Environmental Quality.

Beth Baker is a research associate with the Department of Wildlife, Fisheries and Aquaculture at MSU. She received a master of science degree from St. Cloud State University and has research interests in water sustainability, agriculture resource efficiencies and pollutant remediation. Baker’s research has appeared in the Archives of Environmental Contamination and Toxicology, the United States Geological Survey Open-File Report and Montana Pollution Control Agency Investigative Report.

Gustavo Martinez-Rodriguez is a professor in the Crop and Agro-environmental Science Department at the University of Puerto Rico. An Ohio State University doctoral graduate, his research interests include assessment protocols for the implementation of aquatic criteria and nutrient levels associated with ecological impairment thresholds in reservoirs. His research has appeared in the Journal of Environmental Quality, Journal of Agriculture, Journal of Communications in Soil Science and Plant Analysis, and Lakes & Reservoirs Research & Management.
Globalization of the food supply has created conditions favorable for emergence, reemergence, and spread of food-borne threats and has compounded the challenge of anticipating, detecting, and effectively responding to these threats which have wide-ranging repercussions for consumers, government, and the food industry—both domestically and internationally. This project aims to review and strengthen the Food Safety curriculum in the existing MSc Animal Product Processing, Safety and Entrepreneurship (MAPPESS) program at the College of Veterinary Medicine, Animal Resources and Biosecurity (COVAB) at Makerere University Kampala, Uganda. In addition, the project will co-advice and mentor graduate students in Food Safety as well as submit joint grants and conduct joint research in food safety.

Coordinator Hart Bailey is a professor in the Department of Pathobiology and Population Medicine of MSU’s College of Veterinary Medicine. A Texas A&M University doctoral graduate, he has research interests in risk analysis related to pre- and post-harvest food safety in the food animal industry. Bailey has received funding from the United States Department of Agriculture’s National Research Initiative and National Integrated Food Safety Initiative and the National Institute for Food and Agriculture and has published in various scientific journals.

Margaret Khaitsa is a professor in the Department of Pathobiology and Population Medicine of MSU’s College of Veterinary Medicine. An Ohio State University doctoral graduate, she has research interests in infectious disease epidemiology, particularly of zoonoses and food safety. Khaitsa’s research has appeared in the Journal of Food Protection, North American Colleges and Teachers of Agriculture Journal and Journal of Food Protection Trends.

Byron Williams is an associate extension and research professor in Mississippi State’s Department of Food Science, Nutrition and Health Promotion. A doctoral graduate of the university, he has research interests in the enhancement of industry knowledge of processing technologies and product safety, development of value added muscle foods to enhance commodity product value, effects of new-production practices on meat quality and consumer acceptability and sensory evaluation and acceptability of new and value-added products. Williams’ research has appeared in World’s Poultry Science Journal, Journal of Food Quality and Journal of Food Protection.

Sylvia Angubua Baluke is a lecturer in the Department of Biosecurity Ecosystem and Public Health in Makerere’s College of Veterinary Medicine, Animal Resources and Biosecurity. A graduate of the university, she has research interests in agriculture and food science, integrated pest management and food safety. Baluka has received funding from the Carnegie African Diaspora Fellowship and the Germany Academic Exchange Service.
Coordinator Raj Prabhu is an assistant research professor in Mississippi State’s Department of Agricultural and Biological Engineering. A doctoral graduate of the University, his research interests are in multiscale modeling, injury biomechanics, bio-inspired design and computational modeling. Prabhu’s research has appeared in the Journal of Biomechanics, Annals of Biomedical Engineering, and Journal of the Mechanical Behavior of Biomedical Materials.

Mark F. Horstemeyer is a professor in MSU’s Department of Mechanical Engineering. A Georgia Institute of Technology doctoral graduate, he has research interests in the applications of microstructure-property modeling to optimally design automotive components, weapons, computers and aircraft, among other areas. Horstemeyer’s research has appeared in the International Journal of Polymer Science, the International Journal of Modelling, Identification and Control and International Journal of Solids and Structures.

Kenneth O. Willeford is a professor in the Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology at Mississippi State. A University of California doctoral graduate, he has research interests in physical biochemistry, and enzymology of plants. Willeford’s research has appeared in the International Journal of Poultry Science and Journal of Muscle Foods.

Andy McIntosh is a visiting professor of thermodynamics and combustion theory at the University of Leeds. A Cranfield Institute of Technology doctoral graduate, he has research interests in fundamentals of pressure interactions, interaction of acoustics and flames, and hot-spot ignition. McIntosh’s research has appeared in Proceeding of the Royal Society A: Mathematical, Physical and Engineering Sciences, Journal of Mathematical Chemistry and Proceeding of the IMechE.

Fred R. Musser is an associate professor in MSU’s Department of Biochemistry, Molecular Biology, Entomology, and Plant Pathology. A Cornell University graduate, he has research interests in integrated pest management control tactics for insect pests of row crops, particularly cotton and soybeans. Musser’s research has appeared in the Journal of Economic Entomology, Journal of Cotton Science, and Journal of Insect Behavior.
Wildfires in the U.S. and around the world account for millions of dollars in annual property and ecosystem damage. Researchers in forestry, industrial and systems engineering and geosciences are conducting a geospatial analysis of wildfire occurrence to determine the correlation characteristics. The project also will examine perceptions of wildfire risks among key fire prevention decision makers in both rural and urban populations. Finally, researchers will use geo-spatial and statistical analysis to examine the links between risk perceptions and threat levels. This multidisciplinary research team representing MSU and Poland’s Warsaw University of Life Sciences will conduct comparative studies at the two locations.

Coordinator Robert K. Grala is an associate professor in MSU’s Department of Forestry. An Iowa State University doctoral graduate, he has research interests in forest economics and management, forest-based community and regional development, economics of carbon sequestration, utilization of woody biomass, valuation of non-market forest goods and services and agroforestry. Grala’s research has appeared in the Southern Journal of Applied Forestry, Canadian Journal of Forest Research and Forest Policy and Economics.

Jason Gordon is an assistant extension professor with the Department of Forestry at Mississippi State. A Pennsylvania State University doctoral graduate, he has research interests in community forestry and participatory natural resource management. Gordon’s research has appeared in the Journal of the National Association Country Agricultural Agents, Journal of Extension and Journal of Forestry.

Hugh R. Medal is an assistant professor in MSU’s Department of Industrial and Systems Engineering. A University of Arkansas doctoral graduate, he has research interests in protection of networks against hazards, controlling spreading disasters, transportation, and supply chain network and mathematical optimizations. Medal’s research has appeared in the International Journal of Risk Assessment and Management and Journal of Reliability Engineering and System Safety.

Michał J. Zasada is a professor in the Department of Forestry at Poland’s Warsaw University of Life Sciences. A WULS doctoral graduate, he has research interests in the ecological and economic consequences of non-native tree species, forest management strategies to enhance the mitigation potential of European forests and measurement of forest ecosystem characteristics. Zasada’s research has appeared in the Southern Journal of Applied Forestry and Open Forest Science Journal.
ENVIRONMENTAL AND HUMAN IMPACTS ON FISHES AND WETLAND HABITATS

Growing human populations, industrialization and associated water management needs are increasing pressures on many of the world’s coastal seawater habitats, tropical river ecosystems and rich estuaries. Researchers in wildlife, fisheries, and aquaculture, biological sciences, anthropology and agricultural economics are studying the fishes, habitats, cultures and economies in Southeast Asia in an effort to protect biodiversity, manage fisheries and wetlands and conserve unique ecosystems. This project is designed to protect the region’s cultural heritage while ensuring environmental sustainability and enhancing food security. Mississippi State scientists will collaborate with Institute for Biotechnology and Environment researchers at Vietnam’s Nha Trang University to better understand challenges facing the Mekong River basin, home to 65 million people.
Coordinator Peter Allen is an associate professor of aquatic sciences in Mississippi State’s Department of Wildlife, Fisheries and Aquaculture. A University of California, Davis doctoral graduate in physiological ecology, he has research interests in the physiological plasticity of fishes to environmental change, culture of economically important fish species and conservation aquaculture of imperiled fishes. Allen’s research has appeared in the *Journal of Experimental Biology*, *Journal of Fish Biology* and *Journal of Comparative Biochemistry and Physiology*.

Wes Neal is an associate extension professor of fisheries in the Department of Wildlife, Fisheries and Aquaculture at MSU. A North Carolina State University doctoral graduate, he has research interests in fisheries and pond management, aquatic vegetation, tropical fisheries ecology, fish bioenergetics and angler recruitment. Neal’s research has appeared in the *Journal of the Southeastern Association of Fish and Wildlife Agencies*, *Transactions of the American Fisheries Society* and *North American Journal of Fisheries Management*.

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Protected areas preserve people’s culture and wildlife habitats. These areas constantly are under pressure, however, due to agricultural and urban developments that are major sources of employment and income in many developing regions of the world. Researchers in biological sciences, anthropology, and wildlife are exploring the benefits of protected areas, how local people perceive these benefits and how those benefits affect land-use decisions. An interdisciplinary group representing MSU and the University of Puerto Rico is working to communicate crucial biological and socio-cultural information to policy-makers, businesses and local people who decide how protected areas are used.

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Gary Ervin is a professor in MSU's Department of Biological Sciences. A University of Alabama doctoral graduate, he has research interests in the ecology of invasive species and wetland plant ecology. Ervin has received funding from the Water Resources Research Institute, Northern Gulf Institute and U.S. Geological Survey. His research has appeared in Biological Invasions, Invasive Plant Science and Management and Cactoblastis cactorum.

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