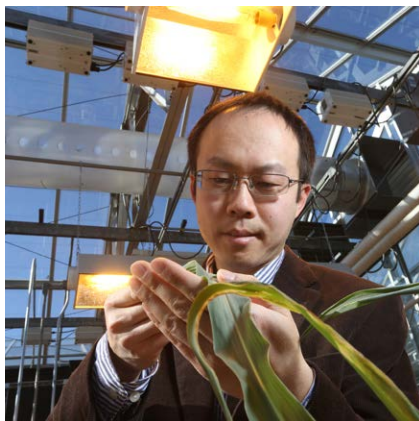




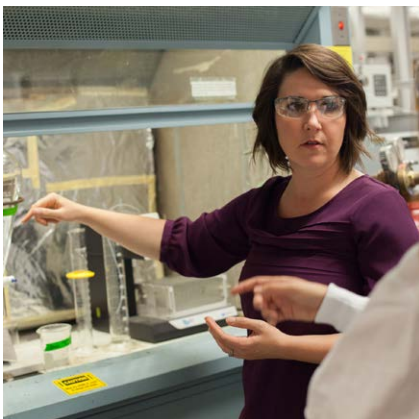
DEPARTMENT OF

AGRICULTURAL AND BIOLOGICAL ENGINEERING



Research Overview

The Department of Agricultural and Biological Engineering (ABE) research focuses on the application of engineering principles to biological systems, resulting the creation of new products and practices that improve the quality of human life. Across the world, we need increased food production, new energy sources, healthcare solutions, and environmentally friendly technologies. ABE research is advancing solutions to grand challenges such as food, energy, water, environment, and health.



Research Areas

- AGRICULTURAL SYSTEMS, SAFETY, AND HEALTH
- BIOLOGICAL ENGINEERING
- DATA SCIENCE AND DIGITAL AGRICULTURE
- ENVIRONMENTAL AND NATURAL RESOURCES ENGINEERING
- FOOD, PHARMACEUTICAL, AND BIOLOGICAL PROCESS ENGINEERING
- MACHINE SYSTEMS ENGINEERING



Research Centers

- LABORATORY OF RENEWABLE RESOURCES ENGINEERING [LORRE]
- THE MAHA FLUID POWER RESEARCH CENTER



*Pictured at left from top:
Dr. Keith Cherkauer, Dr. Jian
Jin, Dr. Abigail Engelberth,
Dr. Mohit Verma and Dr.
Andrea Vacca*

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DEPARTMENT OF

AGRICULTURAL ECONOMICS



Research Overview

The mission of the Department of Agricultural Economics is to acquire and transmit new economic knowledge to the citizens of Indiana, the nation, and the world to support more informed decisions.

Research Areas

- AGRIBUSINESS
- PRICES AND MARKETS
- PRODUCTION/FARM MANAGEMENT
- AGRICULTURE POLICY
- ENVIRONMENTAL/ENERGY/RESOURCES
- INTERNATIONAL TRADE AND DEVELOPMENT
- REGIONAL AND SPATIAL ECONOMICS
- SMALL BUSINESS/COMMUNITY DEVELOPMENT

“The Global Trade Analysis Project’s (GTAP) network connects the department with over 12,500 policy analysts and researchers worldwide.”



Research Centers

- CENTER FOR COMMERCIAL AGRICULTURE
- CENTER FOR FOOD & AGRICULTURAL BUSINESS
- CENTER FOR FOOD CONSERVATION AND WASTE REDUCTION
- CENTER FOR FOOD DEMAND ANALYSIS & SUSTAINABILITY
- CENTER FOR GLOBAL TRADE ANALYSIS (GTAP)
- CENTER FOR RURAL DEVELOPMENT
- DIGITAL INNOVATION IN AGRI-FOOD SYSTEMS LABORATORY
- INDIANA COUNCIL FOR ECONOMIC EDUCATION
- NORTH CENTRAL REGIONAL CENTER FOR RURAL DEVELOPMENT
- PURDUE INSTITUTE FOR FAMILY BUSINESS
- STATE UTILITY FORECASTING GROUP



Pictured at left from top:
Dr. Nicole Olynk Widmar; Dr.
Channing Arndt & Dr. Erwin
Corong; Dr. Valerie Kilders;
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Renee Wiatt

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DEPARTMENT OF

AGRICULTURAL SCIENCES EDUCATION AND COMMUNICATION



Research Overview

ASEC faculty are experts in learning, communication, and public engagement. Faculty conduct research to enhance the effectiveness of formal and informal education and communication programs. A major goal is building capacity to effectively teach lifelong learners across all socioeconomic contexts, improving the quality of life for youth and adults in Indiana and throughout the world. ASEC faculty have expertise in specialized fields such as science communication, career development, experiential learning, STEM integration, and engagement of underserved populations. Our disciplinary bases span animal and plant science, education, educational psychology, communication, and sociology.



Research Areas

- PUBLIC ENGAGEMENT AND SCIENCE COMMUNICATION
- DECISION-MAKING AND RISK COMMUNICATION
- AGRICULTURAL EDUCATION
- EXTENSION EDUCATION
- PK-12 ENGAGEMENT
- TECHNOLOGY-MEDIATED TEACHING OF LIFE SCIENCE TOPICS
- EDUCATIONAL ACCESS
- STEM CAREER DEVELOPMENT
- INTENTIONAL MENTORING
- TEACHING INTEGRATED STEM WITH FOOD AND AGRICULTURE AS A CONTEXT
- INTERNATIONAL ENGAGEMENT
- PROGRAM DEVELOPMENT AND EVALUATION



Dr. Hui-Hui Wang's research revolves around integrated STEM concepts and practices in K-12 formal and non-formal education programs using agriculture, food and natural resources as both content and context.



*Pictured at left from top:
Dr. Sarah LaRose, Dr. Rama
Radhakrishna, Dr. Mark
Tucker, Dr. Neil Knobloch,
and Dr. B. Allen Talbert*

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Faculty Members and Areas of Expertise

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Effective communication and education using a systems approach towards understanding and solving the “last mile” problem of delivering science education across cultures, languages, literacy levels, technologies, and institutional networks.

Colleen Brady, Professor - Extension Education

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Informal science education; assessment of educational needs; development and implementation of effective electronic-based methods.

Natalie Carroll, Professor - Extension

Education; ABE

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Informal learning and curriculum development for youth; experiential learning in environmental and natural resource topic areas.

Neil Knobloch, Professor - Ag+STEM Education

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Teacher and student motivation; K-20 engagement and career development in agricultural STEM disciplines; and assessment of outcomes and impact in K-12 and higher education that use food systems thinking, community-relevant integrated STEM, experiential learning, and learner-centered teaching and mentoring strategies.

Sarah LaRose, Associate Professor -

Agricultural Education; C&I

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Strategies that agricultural educators and universities can implement to increase outcomes of skilled agricultural workers, innovators, and agriculturally literate citizens capable of engaging the public in conversations about controversial issues.

Pamala Morris, Professor

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Intercultural effectiveness and communication; service learning methods.

Casey Mull, Clinical Professor/4-H Program Director

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Boundary spanning; higher education community partnerships; community engagement; engaged scholarship; positive youth development; program development; military youth and vulnerable populations, quantitative and survey design.

Linda Pfeiffer, Associate Professor - Science Communication

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Science communication (communicating science to non-scientists); specializing in psychological factors that influence message perception/reception, risk perception, and utilizing messaging to engage the public in science.

Rama Radhakrishna, Professor/Department Head

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Program development and evaluation; quantitative research methods and data analysis; international agriculture development specializing in outcome and impact evaluations of programs in formal and non-formal settings.

B. Allen Talbert, Professor - Agricultural Education; C&I

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Agricultural teacher education; underrepresented populations in agriculture and agricultural education; qualitative and mixed methods studies.

Roger Tormoehlen, Professor - Extension Education; ABE

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Digital-based learning; engineering literacy; inquiry/challenge-based learning; agricultural health and safety; engineering education; international development; integrated STEM education.

Mark Tucker, Professor - Agricultural Communication

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Public acceptance of emergent science and technology; agricultural and risk communication; audience analysis; Indiana communities and rural life.

Hui-Hui Wang, Associate Professor - Extension Education; C&I

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Integrated STEM concepts and practices in K-12 formal and non-formal education programs using agriculture, food and natural resources as both content and contexts; research-based integrated STEM through AFNR teacher education, and curriculum and instruction design to engage K-12 students' scientific reasoning and knowledge application.

Yaguang Zhang, Clinical Assistant Professor - STEM Education; Online Education

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Digital agriculture and data science education; UAV and wireless connectivity for rural and agricultural systems; GPS and telematics-based analytics for field operations and infrastructure; experiential and interactive learning design using AI, programming, and engineering principles.



DEPARTMENT OF

AGRONOMY



Research Overview

The mission of the Department of Agronomy is use science and technology to improve plants, soils, and our predictive ability to anticipate the impact of the environment on production. The department is fully integrated across the teaching, Extension and research which allows us to address agriculture's most pressing problems. Our students become agronomist who understand crop production, plant genetics, soil health, digital/precision agriculture, or landscape hydrology. They all have a goal of achieving efficient and sustainable agricultural production.



Research Areas

CROPS AND THE CHANGING ENVIRONMENT

Helping Feed the World Population. Gebisa Ejeta, Distinguished Professor of Agronomy, received the World Food Prize for developing drought- and parasitic weed- resistant sorghum varieties.

Enhancing Nutritional Quality. Hold promise to combat nutritional deficiency in developing countries and macular degeneration in the elderly. Agronomy plant scientists have helped to find a way to change nutritionally weak corn into corn that's rich in provitamin A carotenoids which the body converts into vitamin A.

SOIL AND LAND USE

Helping Farmers Improve Soil Health. Help famers improve soil health and resilience by integrating cover crops and no-till into their production systems. Such systems contribute to long-term sustainability.

Creating Tools that Improve Land Use & Ecosystem Services. Develop mapping, assessment and prediction tools to improve land use and increase crop yields, biomass productions, and community planning.



WATER, AIR AND CLIMATE

Helping to Improve Water Quality. Conduct water-quality monitoring studies to assess contaminant sources and design best management and remediation tools.

Saving Lives with Improved Weather Forecasting Technology. The Indiana Climate Office is the state archive of official daily and hourly weather observations recorded throughout Indiana and works in a predictive manor by using historical data to create predictive tools for the future.



Pictured at left from top:
Dr. Dan Quinn, water
sampling, Dr. Eileen Kladviko,
Dr. Mitch Tuinstra, and
Marguerite Bolt

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Dr. Jianxin Ma



Unmanned aerial vehicle

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DEPARTMENT OF

ANIMAL SCIENCES



Research Overview

Animal Sciences focuses on research and technology transfer for efficient and sustainable production of high quality animal products optimizing animal well-being, enhancement of the human diet, and advancement of sound environmental practices.

Our faculty has expertise in the disciplines of growth and development, nutrition, breeding and genetics, physiology, management, and animal well-being and behavior.



Research Areas

ANIMAL PRODUCTION & MANAGEMENT SYSTEMS

- Nutrient Utilization
- Environmental Stewardship
- Efficiency Production
- Food Animal Product Development
- Animal Behavior and Welfare
- Improvement in Reproduction
- Genomic Selection
- Physiology
- Facility Design

GENE REGULATION, STEM CELL & DEVELOPMENTAL BIOLOGY

- Quantitative Genetics
- Genomics
- Transgenic Biology
- Comparative Animal Health & Disease

MOLECULAR ANIMAL PHYSIOLOGY & METABOLISM

- Nutrient Utilization & Partitioning
- Digestive Physiology & Absorption
- Obesity/Diabetes
- Tissue Growth Regulation
- Physiology of Reproduction & Lactation
- Meat Science and Muscle Biology

FOOD QUALITY & FOOD SAFETY

- Pre-harvest Intervention Strategies
- Microbiome Systems
- Stress and Immunology
- Enhanced Nutrient Profiling



*Pictured at left from top:
Beef cattle at ASREC, Dr.
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DEPARTMENT OF

BIOCHEMISTRY



Research Overview

The Department of Biochemistry is committed to basic research and training undergraduate and graduate students for careers in biochemistry, molecular biology, medicine, health sciences, and other science-related careers. Our faculty, graduate students, and staff are located in the Biochemistry Building with additional offices and laboratories in the Hansen Life Science Research Building, Whistler Agricultural Research Building and Hockmeyer Hall of Structural Biology.

The research programs of the department span fundamental plant and biomedical biochemistry.



Research Areas

- METABOLIC AND NATURAL PRODUCT BIOCHEMISTRY
- OMICS: GENOMICS, PROTEOMICS AND METABOLOMICS
- CANCER BIOCHEMISTRY
- EPIGENETICS AND GENE EXPRESSION
- STRUCTURE, DYNAMICS AND FUNCTION OF BIOLOGICAL MACROMOLECULES
- BIOINFORMATICS AND COMPUTATIONAL GENOMICS



Affiliated Units

- PURDUE CENTER FOR CANCER RESEARCH
- INSTITUTE OF DRUG DISCOVERY
- CENTER FOR PLANT BIOLOGY
- INSTITUTE FOR INTEGRATIVE NEUROSCIENCE
- BINDLEY BIOSCIENCES CENTER
- INSTITUTE FOR INFLAMMATION, IMMUNOLOGY AND INFECTIOUS DISEASE



Pictured at left from top: the Cottrell Lab; graduate student Nima Goodarzi; Dr. Joe Ogas with students; Dr. Sujith Puthiyaveetil and postdoc Steven McKenzie; and Dr. Mark Hall's lab group

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Gene-to Lead Drug Discovery

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Protein structure and function in plant natural product biosynthesis

Joe Ogas ogas@purdue.edu
Regulation of cell identity, signal transduction, chromatin remodeling

Sujith Puthiyaveetil spveetil@purdue.edu
Genetic and molecular control of photosynthetic light utilization

W. Andy Tao watao@purdue.edu
Proteomics and biological mass spectrometry

Elizabeth Tran ejtran@purdue.edu
RNA helicases and Post-transcriptional gene regulation

Feng Wang wang6914@purdue.edu
Molecular mechanisms of RNA-mediated gene silencing

Vikki Weake vweake@purdue.edu
Chromatin modifying complexes in Drosophila development as a model for neurodegenerative disease and cancer

CLINICAL TEACHING FACULTY

Ben Carter bccarter@purdue.edu
Clinical Assistant Professor

Orla Hart ohart@purdue.edu
Clinical Associate Professor

RESEARCH FACULTY

Hana Hall hallh@purdue.edu
Research Assistant Professor
Molecular mechanisms of aging and neurodegenerative disease, with focus on gene expression regulation, R-loop biology, and RNA epigenetics.

JOINT/COURTESY APPOINTMENT FACULTY

Seema Mattoo smattoo@purdue.edu
(Biochemistry, Signal Transduction, and Microbiology) Investigation of Fic domain containing proteins in Cellular Signaling. Post-translational modification of proteins is a common theme in signal transduction.

John Morgan jamorgan@purdue.edu
Metabolic engineering of photosynthetic microbes and mathematical modeling of metabolism and transport of plant volatiles

Pete Pascuzzi ppascuzzi@purdue.edu
Bioinformatics; research data management; chromatin organization; DNA replication



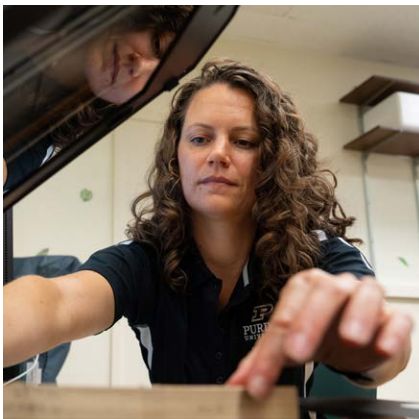
DEPARTMENT OF

BOTANY AND PLANT PATHOLOGY



Research Overview

The Department of Botany and Plant Pathology includes the disciplines of plant biology, plant pathology and weed science. Research in this department addresses both fundamental questions about the biology of plants and their pathogens as well as more applied problems focused on the management and control of weeds and plant diseases.



Research Programs

- CELL AND DEVELOPMENTAL BIOLOGY
- CROP PROTECTION
- DISEASE MANAGEMENT AND EPIDEMIOLOGY
- MYCOLOGY
- PLANT AND FUNGAL BIOCHEMISTRY
- PLANT ECOLOGY AND EVOLUTION
- PLANT GENETICS AND GENOMICS
- PLANT NEMATOLOGY
- PLANT PHYSIOLOGY
- PLANT-PATHOGEN INTERACTIONS
- WEED BIOLOGY
- WEED MANAGEMENT



*Pictured at left from top:
Dr. Daniel Szymanski, Dr.
William Johnson, Dr. Morgan
Furze, Dr. M. Catherine Aime
and Dr. Tesfaye Mengiste*

TESFAYE MENGISTE
DEPARTMENT HEAD

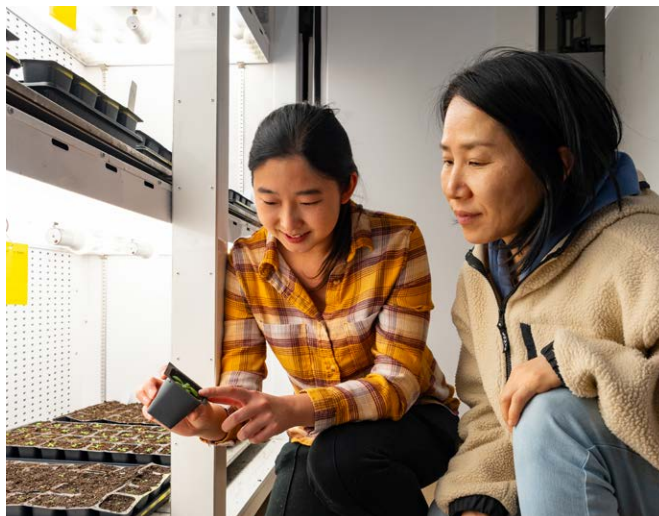
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Faculty by Research Area

PLANT BIOLOGY

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Gyeong Mee Yoon's lab has discovered a key mechanism that regulates how plants develop chloroplasts.



Chris Oakley's research is driven by understanding the mechanisms of how natural plant populations adapt to local conditions.

PLANT PATHOLOGY

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DEPARTMENT OF

ENTOMOLOGY



Research Overview

The Department of Entomology's research portfolio consists of basic science that builds on strengths in insect biodiversity, insect-plant interactions, and applied pest management research focused on stakeholder needs and priorities. We work on a range of insect problems using diverse toolsets and varied disciplinary approaches.

Research Areas

- HOST PLANT-INSECT INTERACTIONS
- ARTHROPOD MOLECULAR BIOLOGY & GENOMICS
- INTERNATIONAL COOPERATION & DEVELOPMENT
- ENVIRONMENTAL & EVOLUTIONARY ENTOMOLOGY
- INSECT SCIENCE EDUCATION
- INTEGRATED PEST MANAGEMENT
- FORENSICS



Research Centers

- CENTER FOR ENVIRONMENTAL AND REGULATORY INFORMATION SYSTEMS (CERIS)
- CENTER FOR URBAN AND INDUSTRIAL PEST MANAGEMENT [CUIPM]
- NATIONAL AGRICULTURAL PEST INFORMATION SYSTEM (NAPIS)
- NATIONAL PESTICIDE INFORMATION RETRIEVAL SYSTEM (NPIRS)
- NATIONAL PLANT DIAGNOSTIC NETWORK (NPDN)
- PURDUE ENTOMOLOGICAL RESEARCH COLLECTION[PERC]



*Pictured at left from top:
a Varroa mite on a bee,
Dr. Laura Ingwell,
Dr. Catherine Hill,
Dr. Linda Mason and
Dr. Christian Krupke*

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Signature Research Areas

I	Host Plant-Insect Interactions
II	Arthropod Molecular Biology & Genomics
III	International Cooperation & Development
IV	Environmental & Evolutionary Entomology
V	Insect Science Education
VI	Integrated Pest Management
VII	Forensics

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Exotic Forest Pest Outreach and Education

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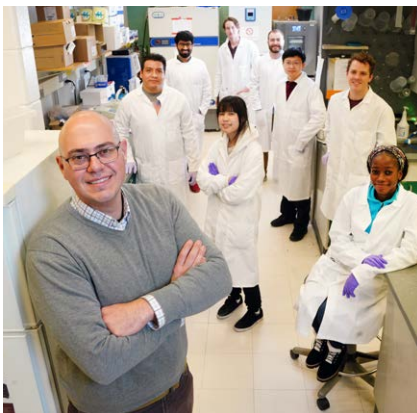
Subramanyam, Shubha - I, II shubha@purdue.edu
Plant-Insect Interactions

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Plant-Nematode Interactions



DEPARTMENT OF

FOOD SCIENCE



Research Overview

The Department of Food Science is committed to impacting the world food system and quality of life by educating and training students for careers in industry, government, and academia. Our mission is to engage in discovery-driven activities leading to innovative learning and outreach that: enhances health, safety, quality, and sustainability of foods; prepares the next generation of leaders in food science; and addresses stakeholder needs. The Department of Food Science has developed four key areas of expertise, each with several major thrusts.



Research Areas

FOOD CHEMISTRY, STRUCTURE, AND FUNCTION

Identifies and creates new aspects of composition, structure, and other functional properties of whole foods and food constituents using chemistry, biochemistry, and material sciences to improve the quality, nutrition, affordability, stability, and sustainability of food and food-related products

FOODS FOR HEALTH

Applies food and biological science principles to the study of whole foods, macro- and micro-nutrients, and bioactive components as a means to improve consumer health and identifies mechanisms by which these effects arise (such as the molecular interactions of food components in biological systems and the role of the gut microbiome)

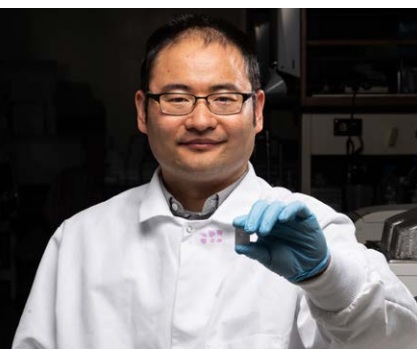


FOOD PROCESSING & TECHNOLOGY DEVELOPMENT

Integrates engineering, chemistry, nanotechnology, environmental sciences, and microbiology through food processing operations to produce safe, nutritious, sustainable, and value-added products

FOOD SAFETY AND MICROBIOLOGY

Studies pathogenic, beneficial (probiotic and fermentative), and spoilage microbes and their interaction with food and the host, and develops novel inactivation and detection methods for pathogens



Pictured at left from top:
Dr. Amanda Deering, Dr.
Stephen Lindemann, Dr.
Haley F. Oliver,
Dr. Bruce R. Hamaker
and Dr. Weicang Wang

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Faculty by Research Area

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FOODS FOR HEALTH

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Dr. Jen-Yi Huang, Professor of Food Science

FOOD PROCESSING & TECHNOLOGY DEVELOPMENT

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Dr. Lisa Mauer's research is aimed at improving the delivery of thiamin in food products. Their goals are to identify all factors that impact the stability of thiamin in food products (including those containing whole and refined wheat, rice, and corn) from production to storage, and to determine if new, more stable, salt forms of thiamin can be produced.

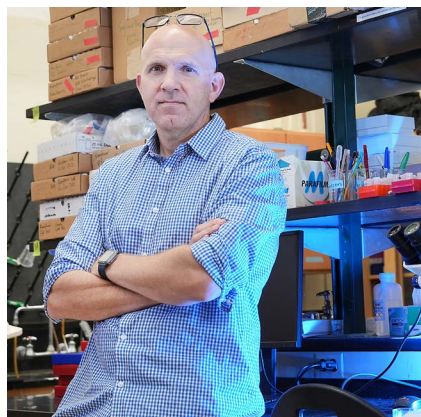
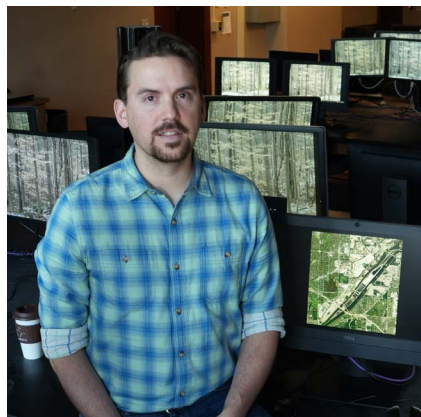
FOOD SAFETY AND MICROBIOLOGY

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DEPARTMENT OF

FORESTRY AND NATURAL RESOURCES



Research Overview

Research in Forestry and Natural Resources is focused on discovering new knowledge that advances the science, management, and sustainable use of natural resources. Strong interdisciplinary research addresses current issues in forest, wildlife, and fisheries management, as well as the ecology of natural systems, digital tools for assessing natural resources, genetics, hardwood products innovations, and social science in natural resource decisions. Research groups focus on:

FOREST SCIENCE

Advancing basic knowledge about forest ecosystems, as well as the physiology, genetics, and growth of hardwood trees, with the goal of providing healthy and sustainable forests in the Central Hardwood Region, including both in rural and urban settings.

WILDLIFE SCIENCE

Increasing and disseminating knowledge about key wildlife species, populations, and communities, and understanding how they relate to ecosystem structure and functioning as well as to environmental changes.

FISHERIES & AQUATIC SCIENCE

Developing and disseminating knowledge about aquatic animals and their habitats, including aquaculture, interactions between aquatic and terrestrial ecosystems, and the fates and effects of pollutants, as well as appropriate management practices for the protection and use of aquatic ecosystems.

ECOLOGY OF NATURAL SYSTEMS

Developing knowledge of factors influencing complex interactions in ecological systems at multiple scales of biological organization, ranging from physiological to community and eco-region units, with an emphasis on effects of human-related drivers such as climate and land-use change, as well as tactics for restoring and conserving ecological processes.

GENETICS

Applying advanced molecular and analytical methods to a variety of genetic questions (e.g., genetic diversity, relatedness, heritability) in populations of important wildlife and tree species.

DIGITAL NATURAL RESOURCES

Developing integrated systems of quantitative techniques for assessing and analyzing forest and associated ecosystems. Efforts focus on advancing quantitative methods related to statistical, simulation, and analytical modeling of natural systems at varying spatial and temporal scales.

NATURAL RESOURCE SOCIAL SCIENCE

Studying the social, political, and economic implications of alternative public policies with regard to the protection, management, and use of natural resources. The awareness, attitudes and behaviors of individuals and groups as these relate to natural resource management are also explored.

HARDWOOD PRODUCTS INNOVATIONS

Assisting hardwood products industry in developing new knowledge for reducing raw material costs, improving processing technologies, and encouraging innovation in product development through science and engineering.

TOMAS HÖÖK
DEPARTMENT HEAD

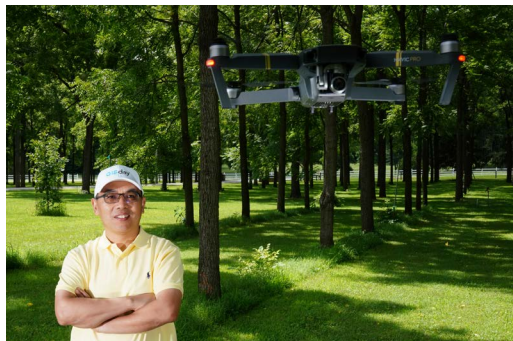
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*Pictured at left from top:
Dr. Brady Hardiman, Dr. Liz
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and Dr. Eva Haviarova*

Research Centers and Institutes

- CENTER FOR GLOBAL SOUNDSCAPES
- HARDWOOD TREE IMPROVEMENT AND REGENERATION CENTER (HTIRC)
- ILLINOIS-INDIANA SEA GRANT PROGRAM (IISG)
- INSTITUTE FOR DIGITAL FORESTRY
- TROPICAL HARDWOOD TREE IMPROVEMENT AND REGENERATION CENTER (TROPHTIRC)



Songlin Fei, director of the Institute for Digital Forestry, has been a pioneer in the use of remote sensing.

Faculty and Research Areas

Bataille, Clement
Brown, Paul
Burt, Carolyn
Carlton, J. Stuart
Christie, Mark
Collingsworth, Paris
Couture, John
DeWoody, J. Andrew
Fei, Songlin
Flaherty, Elizabeth
Furze, Morgan
Gazo, Rado
Ginzel, Matthew
Goforth, Reuben
Gurevitch Jessica
Hardiman, Brady
Haviarova, Eva
Höök, Tomas
Horton, Kyle
Hosen, Jacob
Hoskins, Tyler
Hoverman, Jason
Jacobs, Douglass
Jenkins, Michael
Jo, Insu
Liang, Jingjing
Ma, Zhao
Pijanowski, Bryan
Quagrainie, Kwamena
Quesada, Henry
Ruhl, Patrick
Saher, Rubab
Saunders, Michael
Sepúlveda, Maria
Shao, Guofan
Wainwright, Dylan
Wang, Jianmin
Zhou, Mo
Zollner, Patrick

Isotope Ecology, Biogeochemistry
Fisheries and Aquatic Sciences
Wildlife Ecology
Aquaculture Economics
Conservation Genetics
Great Lakes Ecosystem Science
Plant and Insect Chemical Ecology
Genetics, Wildlife Biology
Quantitative Analysis of Natural Resources
Wildlife Ecology and Habitat Management
Ecology
Wood Processing
Forest Entomology, Chemical Ecology
Aquatic Ecosystems
Ecology and Evolution
Urban Forest Ecosystems
Wood Products
Fisheries and Aquatic Sciences
Aeroecology, Wildlife Ecology
Internet of Things and Ecological Analytics
Wildlife and Aquatic Ecology
Vertebrate Ecology, Disease Ecology
Forest Regeneration and Restoration
Forest Ecology
Digital Forestry
Biodiversity and Ecosystem Processes
Natural Resource Social Science
Spatial Modeling, Land-Use Change, Soundscapes
Aquaculture Marketing
Hardwood Products
Wildlife Ecology
Digital Forestry
Silviculture
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Forestry, Remote-Sensing, GIS
Fisheries
Digital Forestry
Optimal Decision Making in Forest Management
Wildlife Science

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DEPARTMENT OF

HORTICULTURE & LANDSCAPE ARCHITECTURE



Research Overview

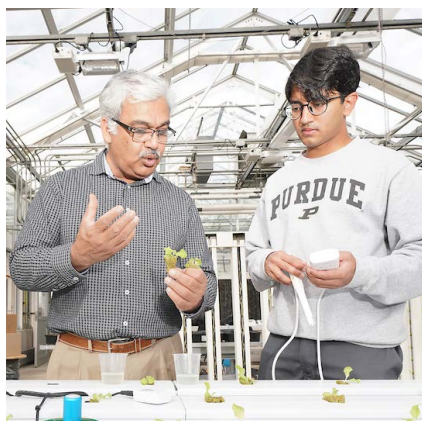
Horticulture applies knowledge from fields of science and biology to improve production and develop sustainable practices for high value, intensively cultivated crops including those used for food, landscapes, ornamentals and medicine. In Landscape Architecture, we analyze, plan, and design the natural and built environment using science, art, and technology.

Combining knowledge from biochemistry, physiology, molecular biology, genetics and ecology with aspects of design, function, and beauty, horticulture and landscape architecture includes people with a broad range of interests.



Research Areas

- Sustainable practices for horticultural crop production
- Alternative crops and cultivars adapted to low-input and organic production systems
- Improvement of postharvest fruit quality
- Controlled environment agriculture
- Herbicide physiology, weed ecology, and mechanisms of herbicide resistance
- Plant interactions with soil microbial communities
- Plant growth and development
- Plant responses to the environment and abiotic stress
- Adapting crops to climate change
- Epigenetic regulation
- Genome editing
- Systems biology
- Plant metabolic biochemistry
- Plant natural product discovery
- Landscape systems and design; land use and planning; landscape ecology
- Plant Nutrition
- Drought Tolerance and Water Management
- Horticultural marketing
- Horticultural education



Pictured at left from top:
Dr. Lori Hoagland, Dr. Yiwei
Huang, Dr. Kranthi Varala,
Dr. Krishna Nemali, and Dr.
Celina Gomez

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Horticulture & Landscape Architecture greenhouses in the early morning

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