

Faculty Areas of Research cont.

Yi Liang, Assistant Professor, (PhD., 2000, University of Alberta). Aerial emissions from agricultural operations, control and abatement strategy of ammonia emission from animal production systems.

Otto J. Loewer, Professor (PhD, 1973 Purdue University). Computer simulation of biological systems, linkages among technology, economics and societal values.

Marty D. Matlock, Professor (PhD, 1996, Oklahoma State University). Ecological watershed modeling, biological assessment and monitoring, ecosystem design and management.

Scott Osborn, Associate Professor (PhD, 1994, North Carolina State University). Heat and mass transfer coupled with kinetics of biological reactions; design of equipment and processes to control biological systems, modeling of biological processes, ecological engineering, oxygenation of wastewater and natural water bodies.

Benjamin R.K. Runkle, Assistant Professor (PhD, 2009, University of California—Berkeley). Wetland ecophysiology, surface water nutrient fluxes and source partitioning, and land-atmosphere exchange of carbon dioxide, methane, and water vapor.

Samy Sadaka, Assistant Professor (PhD, 1995, Dalhousie University and Alexandria University). Bioenergy and energy conservation, grain drying and storage, gasification, pyrolysis, biodying.

Dharmendra Saraswat, Associate Professor (PhD, 2007, The Ohio State University) GeoSpatial technologies (GPS, GIS, remote sensing and sensors) and spatial modeling for production agriculture and environmental issues; outreach program in geospatial technologies for precision agriculture and natural resources.

Karl VanDevender, Professor (PhD, 1992, University of Arkansas). Program development and implementation for livestock and poultry waste management. Educational programs in collection, storage, and land application of waste to prevent contamination of surface and groundwater.

Lalit Verma, Professor (PhD, 1976, University of Nebraska). Bio process Engineering

Jun Zhu, Professor (PhD, 1995, University of Illinois). Air and water quality related to animal agriculture and value added products production from agricultural renewable resources (bio-energy and chemicals).



UNIVERSITY OF
ARKANSAS
COLLEGE OF
ENGINEERING

For More Information

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<http://baeg.uark.edu>
Information about the department, faculty, and BAEG Graduate Student Handbook

University of Arkansas
Graduate School
213 Ozark Hall
University of Arkansas
Fayetteville, AR, 72701
(866) 234-3957
479-575-4401
gradinfo@uark.edu
<http://grad.uark.edu>
Information regarding University of Arkansas admissions, requirements, Graduate School Catalog and Graduate School Handbook

International Admissions
213 Ozark Hall
1 University of Arkansas
Fayetteville, AR, 72701
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iao@uark.edu
<http://iao.uark.edu>
Information regarding admission and requirements for international applicants

The University of Arkansas is an equal opportunity/affirmative action institution.



UNIVERSITY OF
ARKANSAS

biological engineering
GRADUATE PROGRAM



Faculty Areas of Research

Danielle Julie Carrier, Professor (PhD, 1992, McGill University, Canada). Deconstruction of biomass into carbohydrates for bio-based product manufacturing; extraction of co-products.

Thomas A. Costello, Associate Professor (PhD, 1986, Louisiana State University). Poultry housing systems including litter management, improving indoor air quality, reducing emissions, energy conservation through innovative heating, cooling and ventilation. Biomass energy, focusing on handling and conversion of algal, woody and agricultural waste feed stocks.

Brian Haggard, Professor (PhD, 2000, Oklahoma State University). Evaluation of nitrogen, phosphorus, carbon and antibiotics transport and transformation through aquatic systems; sorption and release of dissolved phosphorus by sediments; determination of factors limiting the growth of periphyton and phytoplankton in aquatic systems; and the use of aquatic systems to provide wastewater treatment and nutrient retention.

Chris Henry, Assistant Professor (PhD, 2009, University of Nebraska). Irrigation water management and water quality for cropping systems, performance and energetics, irrigation systems and water quality impacts.

Jin-Woo Kim, Professor (PhD, 1998, Texas A&M University). Bio/Nano Technology with emphasis on self-organization of nanomaterials and their biological applications, e.g., programmable nanostructure self-assembly, nanoscale interfacing technology, nanotechnology-based therapeutics and diagnostics (nanotheranostics), nanobiotechnology for hybrid devices, nucleic acid technology for molecular computation, and molecular biological engineering.

Yanbin Li, Distinguished Professor, Tyson Endowed Chair in Biosensing Engineering (PhD, 1989, Pennsylvania State University). Biosensors for detection of pathogenic bacteria in foods and avian influenza viruses in poultry; Microbial predictive modeling and quantitative risk assessment for food safety.

Graduate Programs in Biological Engineering

The Department of Biological & Agricultural Engineering at the University of Arkansas offers graduate programs at the Master's and Ph.D. levels.

Departmental Philosophy

Our objective is for our students to:

- Develop the ability to comprehend and apply engineering principles in order to solve problems in research, development and design
- Obtain sufficient understanding of the mathematical, physical and biological sciences for comprehension of literature in theses and related fields
- Acquire the skills required to use appropriate equipment, including instruments and computers, in solving problems in their areas of interest
- Achieve the technical competence necessary to teach college level courses and conduct adult education programs, such as in Cooperative Extension

Master of Science Degrees

Master's degree programs offered by the department are:

- Master of Science in Biological Engineering (MSBE)
- Master of Science in Engineering (MSE)

The MSBE requires the student to take a minimum of 24 course hours beyond the B.S. degree; at least 10 semester hours of advanced BENG courses (5000 level or above); and at least one course in mathematics or statistics. In addition, 6 hours of master's thesis are required. There is no non-thesis option. Courses taken prior to acceptance for graduate study cannot be used to fulfill this requirement.

The MSE degree offers a non-thesis option. See the UA College of Engineering webpage regarding Master of Science in Engineering (<http://www.mse.uark.edu/>).

Biological Engineering



Doctor of Philosophy

The doctoral program leads to a Ph.D. in Engineering degree and requires satisfactory completion of at least 30 course hours beyond the master's degree, plus 18 hours of dissertation and the completion of the dissertation based on original research. All Ph.D. students must take a minimum of 13 hours of advanced BENG courses (5000 level or above). At least one course in mathematics or statistics is required in the student's graduate program.



Research Activities

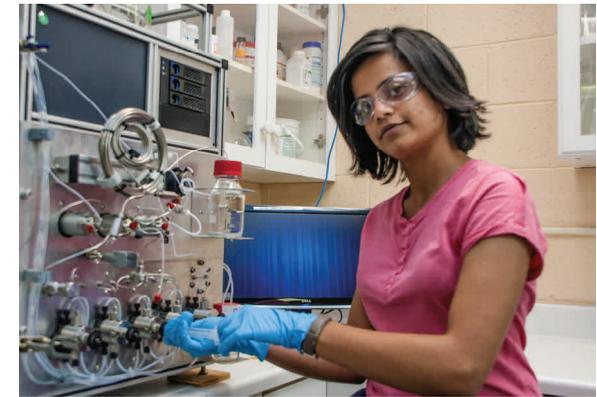
The Department of Biological and Agricultural Engineering conducts research on problems of importance to Arkansas and the entire nation. Successful research is a team effort directed toward program objectives, for which graduate students are considered important members of the research teams.

Several examples of the research projects in these focus areas are:

- Biofuels and biomass energy
- Bioprocess engineering
- Biosensors for food safety, biosecurity and health
- Ecological engineering
- Food safety and risk assessment
- Biorefinery co-products development
- Grain drying and storage
- Irrigation water use in agriculture and water quality
- Nano-bioengineering
- Nonpoint source pollution control and modeling
- Geospatial technology for bioresources monitoring and management
- Air quality and energy efficiency in poultry production
- Sustainable metrics for agriculture
- Low impact development
- Modeling of biological systems

Admission Requirements

To be admitted into the Department of Biological and Agricultural Engineering, the admission requirements of the University of Arkansas Graduate School must first be met. Application materials can be found on the University of Arkansas Graduate School's website. After acceptance by the Graduate School, the applicant's materials are reviewed in the Department and a faculty member is selected to work with the prospective student.



Financial Assistance

Graduate assistantships are available to qualified students. Interested students are strongly encouraged to apply as early as possible (no later than April 1 for Fall semester and November 1 for Spring semester) for consideration. Assistantships are awarded based on academic record, faculty needs, and interest of the applicant. Their requirements are as follow:

Distinguished Doctoral Fellows should have a master's GPA of 3.85 or BS GPA 3.65 or higher, a GRE verbal plus quantitative score at least 314, and a GRE writing score of 4.5 or above. Distinguished Doctoral Fellowship may range from \$30,000/yr up to \$38,000/yr, plus waiver of tuition, for up to 4 years.

Doctoral Academy Fellows should have a master's GPA of 3.65 or BS GPA 3.5 or higher, a GRE verbal plus quantitative score of at least 307 and a GRE writing score of 4.0 or higher. Doctoral Academy Fellowship may range from \$20,000/yr up to \$28,000/yr., plus waiver of tuition, for up to 4 years.

TO APPLY:

Send a letter of application, a resume and transcripts of all college work, and three reference letters to:

Dr. Lalit Verma, Head and Professor
University of Arkansas, Biological and Agricultural Engineering, 203 Engineering Hall
Fayetteville, AR 72701

Phone: 479-575-2351; Fax: 479-575-2846
E-mail: lverma@uark.edu,
Website: <http://www.baeg.uark.edu/>