



UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE

Department of Biological and Agricultural Engineering Newsletter
Dale Bumpers College of Agricultural, Food and Life Sciences
and the College of Engineering

From the Head

Lalit R. Verma
Department Head



The recruiting efforts of the department paid off this fall. Our department had 47 freshman students enrolled. Of those, 20 are members of the newly formed Honors College. A large percentage of the students have shown interest in the Biomedical Engineering concentration.



Our Masters program was recommended for change to Biological Engineering this fall. This will match with the undergraduate program in Biological Engineering.



Dennis Gardisser was promoted to Associate Head of Extension on September 1, 2002. He will be very helpful in providing leadership to our extension programs from the Little Rock office.



The department underwent an ABET review during late October. We will know the official result this summer.



The BAE Academy inducted its second class of members on December 16, 2002. Twelve members were inducted in the ceremony. The academy members held a brief meeting before the induction ceremony and elected new officers for the coming year. More information on this story can be found on page 3.

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Highlights and Presentations

Yanbin Li, Zhenyu Zhang and Chuanimin Ruan presented at the 7th World Congress on Biosensors, May 15-17, 2002, Kyoto, Japan, Paper #P1-2.54 in the Abstract Book of the Seventh World Congress on Biosensors, Elsevier Science, "Capillary bioseparator/bioreactor-based electrochemical biosensor for detection of *Escherichia coli* O157:H7 in food samples."

Indrajeet Chaubey gave an invited presentation titled "How SWAT Models Phosphorus Transport" at the SERA17-IEG meeting in Fort Collins, Colo., June 26, 2002.

Yanbin Li gave an invited speech and presented at the Agricultural and Biological Engineering Development Strategies Forum, June 25-27, 2002, in Yangling, China. The title of the presentation was "Biosensors: Concepts, technologies and applications." Li also presented an invited speech, "Food safety engineering: Interdisciplinary practice and systematic approach," at the International Forum on Post-Harvesting and Food Processing Technologies, June 28, 2002, Hangzhou, China.

Indrajeet Chaubey and Sreekala Bajwa organized and conducted a workshop on "Introduction to GPS and GIS for engineers" in Little Rock on July 2, 2002.

Hong Yang and Yanbin Li presented at the 1st International Conference on Microbiological Risk Assessment: Foodborne Hazards, July 24-26, 2002, Adelphi, Maryland, P-61 in the Programs and Abstracts, "Two-population exponential model as a kinetic model for bacterial inactivation during food processing." **Ira Zakariadze, Hong Yang and Yanbin Li** also presented P-63 in the Programs and Abstracts, "Quantitative microbial risk assessment for *Salmonella typhimurium* in broiler processing."

Several faculty members attended ASAE meeting in Chicago, Ill., July 29-August 2.

Indrajeet Chaubey presented a paper titled "Effect of spatial data resolution on SWAT output uncertainty." **Vijay Garg** presented a paper titled "Quantification of model output uncertainty due to watershed size" at the ASAE meeting. **Madhukar Varshney, Youngcheng Liu and Yanbin Li** presented ASAE Paper #027021, titled "A chemiluminescence fiber optic biosensor coupled with immunomagnetic separation for detection of *S. typhimurium* in food samples."

Liju Yang, Chuanimin Ruan and Yanbin Li presented ASAE Paper #027022, "An impedance immunosensor for detection of *Escherichia coli* O157:H7 using ITO chips."

Z. Zhang, Youngcheng Liu, Chuanimin Ruan and Yanbin Li presented ASAE Paper #027015, "Detection of *Escherichia coli* O157:H7 using capillary bioseparator/bioreactor with electrochemical or optical measurement."

Omar Trujillo, Carl Griffis, Michael Slavik, and Yanbin Li, gave an abstract and oral presentation, "The Use of Image Analysis, Fluorescence-Microscopy, and Antibody Patterning for Rapid Detection and Enumeration of *Salmonella typhimurium*."

They also submitted a paper, "A Machine Vision system Using Circular Autoregressive Models for Rapid Recognition of *Salmonella typhimurium*."

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Faculty & Staff News



Ken Shelby, Research Specialist, was recognized for 30 years of service to the university at a banquet on October 1. Ken began working

for the University of Arkansas in June 1972. He currently maintains departmental computer hardware and software including networking capabilities, department inventory, vehicle reports, and department projects in all our labs. Ken has worked nights and weekends helping students finish projects, getting them to meetings, seeing that all their posters are printed and projects are where they need to be. Ken is a real asset to the department.



Dr. Indrajeet Chaubey and his wife, Shraddha, welcomed the newest member of their family on January 5, 2003. Amogh Chaubey, 6 lbs. 4 oz., and 19 1/2 inches long, was born at Washington Regional Medical Center in Fayetteville. Welcoming him home was proud sister Eli.



Chris Langford, Research Specialist, joined the BAE staff on September 3, 2002. Chris is responsible for designing, speci-

fying, fabricating, testing, and maintaining all electronic equipment in the department. Chris and his wife, Melaina, have two sons and moved to Fayetteville from Huntsville, Alabama. Chris plans to obtain his Ph.D. from the University of Arkansas. He and his family are big baseball fans and are looking forward to next season with the Razorbacks.



Keith Driscoll, Research Specialist, joined the BAE department in September 2002. He is working with Dr. Rong Murphy.

Keith earned his B.S. and M.S. in Chemical Engineering from The Ohio State University and completed his Ph.D. in Chemical Engineering from the University of Arkansas in May 2001. Keith and his wife, Sharon, reside in Springdale.

From the Head — continued from page 1

The departmental annual review was also held on December 16. All faculty including extension engineers made presentations on their 2002 accomplishments and plans for 2003. The Advisory Board meeting was held that afternoon.



Our department has been awarded five doctoral fellowships: two for \$20,000 and three for \$5,000. These are made possible from the \$300 million dollar donation to the University of Arkansas from the Walton Charitable Trust.



The Bioenvironmental concentration has expanded to Ecological Engineering to better define our integrated approach to environmental problem solving. We have also renamed the Biomechanical Engineering concentration to Bioresource Engineering to reflect the broad range of activities it covers.



As always we welcome visits and suggestions from our Alumni. We are constantly striving to make improvements in the department.

Moving, changing jobs, new happenings Let us know...

Name: _____
 E-Mail: _____
 Company: _____
 Address: _____
 City: _____
 State: _____ Zip Code: _____
 Home Phone: _____
 Business Phone: _____
 Comments: _____



Please mail, email or fax updated information to:

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BAEG 2003 ACADEMY MEMBERS



The University of Arkansas Department of Biological and Agricultural Engineering inducted its second class of members into the Arkansas Academy of Biological and Agricultural Engineering during a banquet on December 16, 2002. This year 12 members were inducted.

The Charter members along with the new inductees met prior to the induction ceremony to elect new officers and set goals for the coming year. Randy Young was elected President, John Bocksnick as Vice President, and Michael Freer as Secretary-Treasurer.

The Class of 2003 Members of the Arkansas Academy of Biological and Agricultural Engineering and the years they earned their degrees are, from Arkansas: Dennis K. Carman of Little Rock, B.S. '73; Carl L. Griffis of Fayetteville, B.S. '63, M.S. '65, Ph.D. '68; John M. Langston of N. Little Rock, B.S. '71, M.S. '73; Otto J. Loewer of Fayetteville, B.S. '68, M.S. '70, Ph.D. '73; Ralph A. Mashburn of England, Ark., B.S. '58; Robert W. Newell of Newport, B.S. '54; Albert E. "Gene" Sullivan of N. Little Rock, B.S. '59; the late Judge H. Franklin Waters of Springdale, B.S. '55; and Robert W. White of Fayetteville, B.S. '72, M.S. '76.

From outside Arkansas: Michael D. Jones of Gulf Shores, Ala., B.S. '67, M.S. '68; Paul N. Walker of University Park, Penn., B.S. '70, M.S. '71, Ph.D. '74; and Harold S. Stanton of Birmingham, Mich., B.S. '50, M.S. '53.

Pictured above from left to right are: Carl Griffis, Robert White, Otto Loewer, Jane Waters, Ralph Mashburn, John Langston, Harold Stanton, Dennis Carman, and Robert Newell. Not pictured below is Gene Sullivan.



CARMAN



GRIFFIS



JONES



LANGSTON



LOEWER



MASHBURN



NEWELL



STANTON



WALKER



WATERS



WHITE



GARDISSER PROMOTED



Dennis Gardisser has been promoted to the position of Associate Head of Extension. Dennis was born and raised on a dairy farm in Northwest Arkansas. He and his wife, Beverly, have two daughters and two grandchildren. Dennis has worked for the University of Arkansas Cooperative Extension Service as an Extension Agricultural Engineer since June 1982. He received his B.S. in Agricultural Engineering from the University of Arkansas in 1979, M.S. in Agricultural Engineering from the University of Arkansas in 1981, and his Ph.D. in Engineering from the University of Arkansas in 1992. Dr. Gardisser will work closely with Dr. Lalit Verma to provide administrative support and program leadership for the extension programs of the Biological and Agricultural Engineering section within the agriculture and natural resources program area.

CORBITT RECOGNIZED FOR OUTSTANDING SERVICE



Cynthia Corbitt, Administrative Office Supervisor for Biological and Agricultural Engineering - Extension, was recently presented a plaque in recognition of her outstanding service to the department. Cynthia began working for the department in the Secretary II position and was promoted last March to her current position. Pictured at left are Cynthia receiving the award from Dr. Dennis Gardisser and Dr. Lalit Verma.

NEW SECRETARY HIRED

Sandy Moody recently joined the staff in the Little Rock Extension Office. Sandy will be working in the secretary position that was formerly held by LaSondra Hunt. She comes to the office with several years experience working in state government, the four most recent being in the University of Arkansas System. Sandy is the mother of two daughters and has two grandchildren. When not working she enjoys astronomy.



GARDISSER KEY NOTE SPEAKER AT NAAA CONVENTION

Dennis Gardisser was invited to be a keynote speaker at the 36th Annual National Agricultural Aviation Association Convention and Exposition. The convention was held December 9-12 in Reno, Nevada.

ASAE presentations were made on Monday, December 9, 2002. Dr. Gardisser and Dr. Bob Wolfe of OSU presented a report on "Practical Field Demonstrations for Drift Mitigation." A comparison between several popular/new drift-control products were made based on tests that were conducted in a practical field demonstration.

On Tuesday, December 10, 2002, Dr. Gardisser and Dr. Bob Wolfe were the keynote speakers, making a presentation on "Homeland Security for Ag Aviation." Drs. Gardisser and Wolfe addressed such issues as proactive approach to potential security risks, potential impacts from terrorism, and innovative training sessions as a part of every business.

On Wednesday, December 11, 2002, Dr. Gardisser was an invited speaker making a presentation about "CP Nozzle Technology" to more than 250 in attendance.

Dr. Gardisser has been asked to serve on the 2003 Board of Directors as a member of the Research and Demonstration Committee of the NAAA.

Highlights and Presentations — continued from page 1

Indrajeet Chaubey and **Marty Matlock** attended S-1004 Regional Research Project meeting in Snow Bird, Utah, on September 8-10, 2002.

Indrajeet Chaubey and **Sreekala Bajwa** presented a workshop titled "Introduction to geographic information systems (GIS) applications in engineering" at the Arkansas Section of ASAE meeting on October 4, 2002, in Little Rock.

Indrajeet Chaubey and **Carl Griffis** presented a seminar titled "Teaching online: an innovative pedagogical tool" in Southern Region Teaching Symposium on October 6-8, 2002.

Jin-Woo Kim, Mian Li and Tonya L. Peeples presented "Bioconversion Potential of Extremophilic Aqueous Two-Phase Reactor System" at the 2002 American Society of Agricultural Engineers (ASAE)- Congress of the International Commission of Agricultural Engineering (CIGR) International Annual Meeting, Chicago, Ill.

Indrajeet Chaubey attended the Phosphorus Conference organized by the Division of Agriculture and gave a presentation titled "Total Maximum Daily Loads" on October 15, 2002.

Mian Li, Michael Hanford, **Jin-Woo Kim** and Tonya L. Peeples presented "Interfacial Catalysis: Amyloglucosidase Entrapment in Dipalmitoylphosphatidylcholine Multilamellar Vesicles" at the 224th American Chemical Society (ACS) National Meeting (Advances in Biocatalysis Session), Boston, Mass.

Indrajeet Chaubey attended the Annual Conference of American Water Resources Association during November 3-7, 2002, in Philadelphia and presented a poster titled "Watershed curve number estimates based on rainfall" coauthored by **Vijay Garg** and **Indrajeet Chaubey**, and a paper titled "Implementation of a mass balance and modeling approach to assess watershed scale phosphorus source and transport," coauthored by **Indrajeet Chaubey**, **Kati L. White** and Marc A. Nelson.

Debabrata Sahoo, **Indrajeet Chaubey**, **Marty Matlock** and **Brian Haggard** coauthored a poster titled "Stream Nutrient Retention in Moores Creek" that was presented at the annual conference of Arkansas Water Environment and Water Federation Conference.

Marty Matlock was an organizer, session chair and invited speaker at the Water Environment Federation-United States Environmental Protection Agency National TMDL Science and Policy 2002 Specialty Conference in Phoenix, Arizona.



WHITE AWARDED SCHOLARSHIPS

Kati L. White, Ph.D. student under the supervision of Dr. Indrajeet Chaubey, is shown receiving the Randall Mathis Scholarship for Environmental Studies by Arkansas Environmental Federation. White was also awarded the Mark and Theresa Gentry Land and Water Scholarship in the amount of \$500.



DIRECTOR OF ECONOMIC DEVELOPMENT INSTITUTE

Dr. Otto Loewer was appointed as the founding director of the new Economic Development Institute at the University of Arkansas. Loewer formerly served as the Dean of the College of Engineering from 1996-2002.

The pupose of the institute is to promote economic development by extending univeristy programs throughout the state.



Yes! I would like to contribute to the scholarship fund!

Please accept my contribution to the following scholarship. My check for \$ _____ is enclosed.

Billy Bryan Scholarship Fund _____ **Joel T. Walker** Memorial Scholarship Fund _____

Biological and Agricultural Engineering **General** Scholarship Fund _____

NAME: _____
ADDRESS: _____
CITY: _____
STATE: _____ ZIP: _____ PHONE: _____
E-MAIL ADDRESS: _____

Remit Payment To: Department of Biological and Agricultural Engineering
203 Engineering Hall
University of Arkansas
Fayetteville, AR 72701

ECOLOGICAL ENGINEERING at



Indrajeet Chaubey
Assistant Professor
UA - Fayetteville

Ecosystem processes and services—such as nutrient cycling, flood control, sediment retention, habitat and bioremediation—are complex and difficult to manage. Increasing human demands on ecosystems have resulted in the loss of critical ecosystem functions worldwide. Ecological Engineering is the design of complex biotic and abiotic processes to preserve, restore, and enhance ecological services. This new approach to bioenvironmental engineering is based on an ethic of conservation of Earth’s resources for sustained quality of life for future generations. The science of ecology and study of ecosystems provide the foundation for Ecological Engineering, but the practice of designing sustainable systems requires a fundamental engineering skill set, as well as expertise in risk assessment, risk management, public policy and economic theory. The Department of Biological and Agricultural Engineering’s tradition of interdisciplinary collaboration provides an ideal platform for Ecological Engineering.



Tom Costello
Associate Professor
UA - Fayetteville

The Ecological Engineering Group within the Biological and Agricultural Engineering Department at the University of Arkansas applies the principles of ecology using the engineering method to investigate, manage and restore ecosystems degraded by human activity, focusing on the smallest unit of ecosystem management—the watershed. The techniques used by the group include remote sensing, land use analysis, geographic information system (GIS) modeling, terrestrial and aquatic ecosystem process monitoring, plant growth, eco-indicators and systems automation. The Ecological Engineering Group’s research includes diverse topics such as regional nutrient flux and microbial response to pharmaceuticals. Faculty are engaged in research in bio-energy conversion, life support system design, water use optimization, nutrient management, water resource management, decision support system development and stream restoration.



Brian Haggard
Adj. Assistant Professor
USDA-ARS-PPPSRU



Marty Matlock
Assistant Professor
UA - Fayetteville



Scott Osborn
Assistant Professor
UA - Fayetteville

the UNIVERSITY of ARKANSAS



One of the most pressing needs in Arkansas being addressed by the Ecological Engineering Group is to better understand and manage stream responses to nutrient enrichment from diffuse and point sources. The processes of nutrient cycling in streams is complex, thus the research addresses multiple ecosystem processes. The research includes whole-reach measures of nutrient retention efficiency through smaller-scale measures of algal response to nutrient enrichment and processes of sediment storage, buffering and exchange of biologically available nutrients. The whole-reach and smaller-scale investigations are being conducted in multiple streams with varying ambient nutrient concentrations and watershed characteristics. The objective is to develop enhanced management criteria for water quality in these streams that protects human and ecosystem health, while enhancing the natural nutrient assimilative capacity of the streams. The Ecological Engineering Group's research connects landscape and stream processes. The group uses geographic information system-based watershed models to assess and restore ecological services at the landscape level, focusing on regional land use change, riparian cover loss and stream geomorphologic alteration.

We currently have eight faculty members working in the area of Ecological Engineering: Indrajeet Chaubey, Tom Costello, Brian Haggard, Marty Matlock, Scott Osborn, Phil Tacker, Karl VanDevender and Earl Vories. The group has active funding from extramural sources totaling more than \$2.1 million. Members of the group gave a combined total of 13 invited presentations, 15 conference proceedings and presentations, and had eight peer-reviewed publications last year.



Earl Vories
Associate Professor
NEREC - Keiser

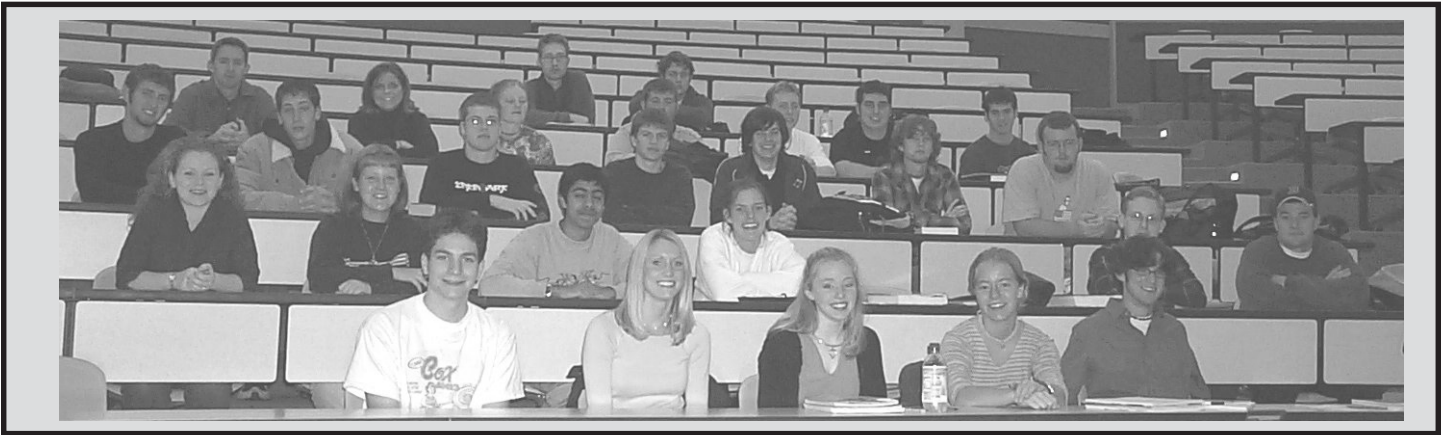


Karl VanDevender
Associate Professor
UAEX - Little Rock



Phil Tacker
Associate Professor
UAEX - Little Rock

FALL 2002 FRESHMAN CLASS



Pictured above are several members of the freshman class. Fall 2002 began with our largest freshman class on record for the Biological and Agricultural Engineering Department with 47 students enrolled in Dr. Carl Griffis' BENG 1012 class. Twenty of those students were also enrolled in the newly established Honors College. When Carl surveyed the students to determine what their specific interest was within the department, 29 (60%) showed interest in the Biomedical Engineering field, 10 (22%) in the Bioenvironmental field, seven (16%) in the Biomechanical field, and one (2%) in the Bioprocessing/Food related field. The students participated in two design contests, the "Egg Launcher" contest, and the "Boe-Bot Maze Running" contest, in addition to many other activities.



At left graduate student, Amber Gosnell, and senior, Dylan Carpenter, watch as two of the teams from the BENG 1012 class prepare their egg launchers. The team on the left was composed of Dylan Ballard, Nova-Dawn Fant and John Teeter and the team on the right was composed of Will West and Ashley Finsel. A third team, Devin Smith, Ben Kirksey and Brett Helms, has quite an audience as they test their launcher.



Matthew Doyle, Jessica Bieker and Chase Darr set up their project in the photo on the left. At right Drs. Julie Carrier and Carl Griffis along with Dr. Griffis' daughter and grandson, Pepper and Ian Smith, watch the team of Gabriel Vigh, Aaron Hilborn, Jennifer Raible and Jack Bourne.



Engineering for Life

www.baeg.engr.uark.edu

Biological Engineering Student Club

PRESIDENT

Chris Long
Fayetteville, AR
cml03@uark.edu

VICE PRESIDENT

Tyler Gipson
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SECRETARY/TREASURER

Drake McGruder
Germantown, TN
dmmcgru@uark.edu

FACULTY ADVISER

Dr. Carl Griffis
clg@uark.edu



Students played a friendly game of croquet.

The Biological and Agricultural Engineering Department Student Club was active this fall with many activities.

A fall outing was held at Lake Wedington. The turnout was great. Some of the activities included fishing, volleyball, croquet and horseshoes. The event was catered by Penquin Ed's Bar-B-Que.

Our student club was awarded first place in the Engineering Canned Food Drive. A special thanks to Willie Dillahunty, Chris Long and Allen Canning.

The club sponsored a fundraiser during December. Baskets were filled with House of Webster jams and jellies, bar-b-que and steak sauces, ice cream toppings and salsas. The baskets range in price from \$10 to \$25, and there are still several available. The money made from these baskets will go towards sending students to national professional meetings and a field trip planned for this spring. If you are interested in purchasing a basket please contact the main office at 479-575-2351.

Dr. Scott Osborn will be taking over the position of club advisor. The club is looking forward to the spring semester and hopes to sponsor many additional activities for members. Some of the plans include finalizing requirements for student club members, taking a field trip throughout the state to view real-world engineering applications and applying for IBE (Institute of Biological Engineers) University Chapter recognition. The club will be making a concentrated effort to increase student membership and activity within IBE.



Volleyball was just one of the activities that everyone enjoyed at Lake Wedington.

Alumni News

Dr. Tony Grift, Ph.D. 1998, has joined the Department of Agricultural Engineering at the University of Illinois at Urbana-Champaign as Assistant Professor. His interest is in sensors and controls in automation of equipment for agriculture and forestry; machine vision systems, electronic sensor development and data acquisition for agricultural uses; and mathematical modeling and control systems. Dr. Grift is teaching undergraduate and graduate courses in off-road equipment engineering.



Rachel Davis, B.S. 2002, was married in June of 2002 to Matt Lipsey. Rachel will begin graduate studies in Spring 2003 at the University of Oklahoma. Her husband Matt is an engineering graduate student at OU.



Amy Cotter, B.S. 2000, completed her master's degree in Summer 2002. Cotter is employed by the Arkansas



Department of Environmental Quality in the Environmental Preservation Division. Amy was married in October to Cody Merriman and they reside in Mayflower.



Dylan Carpenter, B.S. 2002, is continuing his studies in the Biological and Agricultural Engineering Department. He is working on his master's degree under the direction of Dr. Jin-Woo Kim.

Biological Engineering Faculty Members

Department Head

Dr. Lalit Verma
lverma@uark.edu

Professors

Dr. Dennis Gardisser
dgardisser@uaex.edu

Dr. Carl Griffis
clg@uark.edu

Dr. Otto Loewer
ojl@enr.uark.edu

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Gary Huitink
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Phil Tacker
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Dr. Earl Vories
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Assistant Professors

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Dr. Marty Matlock
mmatlock@uark.edu

Dr. Rong Murphy
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Dr. Scott Osborn
gsosborn@uark.edu

Distinguished Doctoral Fellowships and Doctoral Academy Fellowships

The Department of Biological and Agricultural Engineering at the University of Arkansas has two Distinguished Doctoral Fellowships and four Doctoral Academy Fellowships as well as graduate research assistantships available in several research areas in biological engineering.

FELLOWSHIPS:

Two Distinguished Doctoral Fellowships offer a stipend of \$30,000 per year plus tuition for up to four years.

Four Doctoral Academy Fellowships offer a stipend of \$18,700 per year plus tuition for up to four years.

RESEARCH PROJECTS:

- Bioimaging for Monitoring Food Safety and Quality
- Bioinformatics
- Biomass Energy
- Biomedical Engineering
- Bioprocess Engineering
- Biosensors for Detection of Biological Agents
- Decision Support System Development for Natural Resource Management
- Ecological Engineering
- Extraction of Dietary Supplements
- Food Thermal Processing and Food Safety
- Micro/Nanobiotechnology
- Nonpoint Source Pollution Control and Modeling
- Precision Agriculture
- Reducing the Occurrence of Bacterial Resistance to Medical Antibiotics in Environment
- Remote Sensing for Bioresources Monitoring and Management
- Water Management for Agricultural Production

REQUIREMENTS:

Distinguished Doctoral Fellows should have a master's GPA of 3.85 or B.S. GPA 3.65 or higher, a GRE verbal plus quantitative score at least 1300 and a GRE writing score of 5.5 or 6.0.

Doctoral Academy Fellows should have a master's GPA of 3.65 or B.S. GPA 3.5 or higher, a GRE verbal plus quantitative score of at least 1200 and a GRE writing score of 5.0 or higher.

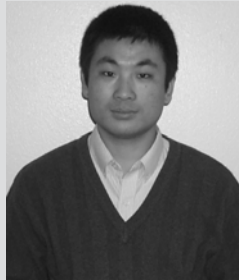
TO APPLY:

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

Dr. Lalit Verma, Head and Professor
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203 Engineering Hall
University of Arkansas
Fayetteville, AR 72701
Phone: 479-575-2351 Fax: 479-575-2846
E-mail: lverma@uark.edu, Website: www.baeg.enr.uark.edu

MEET OUR NEW GRADUATE STUDENTS

Zhihui Liu transferred to our department from the Food Science Department. Liu is pursuing his Ph.D. degree under the guidance of Dr. Yanbin Li. He had previously earned his B.S. degree in Food Engineering from Beijing Agricultural Engineering University and his M.S. degree in Food Engineering from the China Agricultural University.



Abani Pradhan will be working with Dr. Yanbin Li in the area of Food Processing Engineering. He is from Angul, India, and has earned a B.Tech degree in Agricultural Engineering from Orissa University of Agriculture and Technology and his M.Tech degree in Agricultural and Food Engineering from the Indian Institute of Technology. Pradhan spent 10 months in Germany participating in research during his studies for his master's program.



Sumit Sen comes to the University of Arkansas from Saharanpur, India. Sen earned his B.Tech in Agricultural Engineering from Allahabad Agricultural Institute Deemed University. He will be working with Dr. Indrajeet Chaubey in the area of Bioenvironmental Engineering.



Arkansas Precision Agriculture Working Group

The Arkansas Precision Agriculture Working Group (ARPAWG) was formed at the first stakeholder meeting on October 31, 2002, at the Cooperative Extension Service's office in Little Rock. ARPAWG's mission is to coordinate precision agriculture activities (research, education and extension) in Arkansas. Members of the ARPAWG include scientists and students from University of Arkansas campuses at Fayetteville and Monticello and Arkansas State University at Jonesboro, Cooperative Extension Service personnel, growers, and industry representatives. Drs. Bajwa and Gardisser are the co-chairs and Mr. Mishra is the information officer for ARPAWG.

ARPAWG supports and announces the *Arkansas Remote Sensing Symposium – Precision Agriculture and Forestry Applications* on February 18, 2003 at the University of Arkansas Cooperative Extension Auditorium in Little Rock. For more information, go to http://www.gis.state.ar.us/Downloads/RS_Symposium_registration.pdf.



The Arkansas Section of the ASAE met in Little Rock on October 4, 2002. New officers took over their positions for the coming year. They are: Chairman - Karl VanDevender, Treasurer - Billy Staton, Secretary - Charolette Bowie and Vice-Chairman of Development - Indrajeet Chaubey. The next annual meeting will be held on October 3, 2003, at the Extension Service Building in Little Rock.

A \$500 donation has been made to the Joel Walker Memorial Scholarship Fund at the University of Arkansas in Fayetteville and to the Al Mink Memorial Scholarship Fund at Arkansas State University in Jonesboro.

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Calendar of Events

MARCH

17-21 Spring Break

APRIL

TBA Spring Outing
18 Orientation Session 2

MAY

2 Dead Day
3-9 Final Exams
10 Commencement
19 Summer Session I Begins
26 Memorial Day (UA closed)

JUNE

16-17 Orientation Session 3
19-20 Orientation Session 4
23-24 Orientation Session 5
26-27 Orientation Session 6
30 Summer Session II Begins

BAE *Lifeline*

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◆
College of Engineering 479-575-6012
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**The University of Arkansas is an
equal opportunity/affirmative action institution.**