

# BAEG LIFE LINE

University of Arkansas

Fall 2014

## From the Department Head

It is with sadness we share that a long-time and dedicated member of our departmental family, Dr. Carl Griffis, passed away on October 31. Carl was a faculty member at the U of A for 43-years and served as department head during 1992-97. He will be greatly missed.

I am pleased to share news and developments of the past few months. There are 75 undergraduates (sophomores to seniors) and 33 graduate students this Fall. Our departmental academic programs are now in the College of Engineering, with research and extension functions continuing in the UA Division of Agriculture's Agricultural Experiment Station and Cooperative Extension Service, respectively. One of our senior design teams, Russell Bair, Matthew McVey, Colby Reavis, and Deandre Smith mentored by Dr. Tom Costello, won the second prize in the G.B. Gunlogson "Open" Student Competition for their presentation of "Feasibility of Anaerobic Digestion to Produce Usable Energy from Campus Food Wastes" at the 2014 Annual International Meeting of the American Society of Agricultural and Biological Engineers (ASABE) in Montreal, Canada. We were visited for ABET accreditation of our undergraduate program in Biological Engineering in October. The Arkansas Section of ASABE held its 51<sup>st</sup> Annual meeting in Fayetteville on October 3 with technical presentations and a field tour. Ms. Shelby Paschal and Katie Smith were recognized as our Outstanding Seniors at this event.

Dr. Benjamin Runkle joined us as an Assistant Professor and taught one of our core undergraduate courses (Sustainable Watershed Engineering). He is engaged in Climate Change research with emphasis on wetland ecohydrology, and land-atmosphere exchange of CO<sub>2</sub>, methane, and water vapor. I had the honor of representing ASABE at the 2014 EuroAgEng Conference in Zurich, followed by concluding my term as President at the 2014 ASABE Annual International Meeting in Montreal in July. Participation in September in the 2014 CIGR Congress in Beijing, China was very enlightening. These forums have provided invaluable global exposure and relationships with individuals related to our profession.

Please review our programs ([www.baeg.uark.edu](http://www.baeg.uark.edu)) and continue to support our efforts. Please do not hesitate to call (479-575-2351), e-mail ([lverma@uark.edu](mailto:lverma@uark.edu)) or visit us. We would love to share our activities with you and help answer any questions you may have.

Lalit R. Verma, P.E.  
Professor and Department Head



The Biological and Agricultural Engineering Department wishes everyone a safe and happy holiday.

The university will be closed starting December 24, 2014 and will reopen on January 5, 2015.

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## Featured Faculty

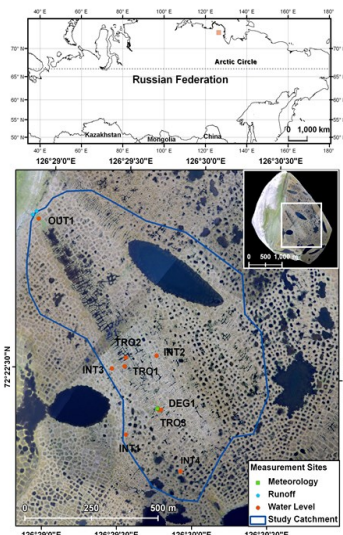
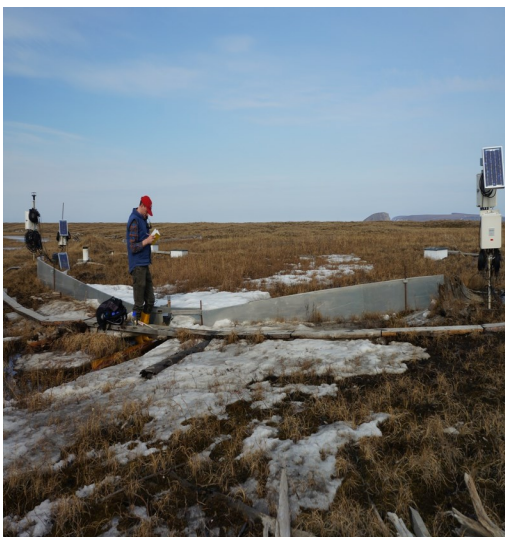
We are pleased to welcome Dr. Benjamin Runkle to our Biological and Agricultural Engineering Family!



Benjamin Runkle grew up in Dayton, Ohio. He has an undergraduate degree in Civil and Environmental Engineering from Princeton University. His masters and doctorate are also in Civil and Environmental Engineering from the University of California, Berkeley. Prior to his arrival at the University of Arkansas, Dr. Runkle worked as a post-doctoral research scientist at the University of Hamburg in Germany. There, his research focused on connections between the water and carbon cycles in northern, carbon-rich landscapes such as peatlands and the permafrost tundra of Siberia.

Dr. Runkle's research on the water and carbon cycles allows the development of a constrained budget of water, energy, and carbon fluxes into and out of wetland landscapes. This research uses micrometeorological techniques to evaluate the land-atmosphere fluxes of water vapor, carbon dioxide, methane and energy. This method involves the eddy covariance technique to determine the turbulent flux within atmospheric boundary layers. His research approach also uses hydrological methods to estimate the horizontal fluxes of dissolved carbon in surface and sub-surface waterways. Together these methods generate quantified and reliable estimates of major environmental fluxes that are useful to support process-based predictive modeling and other engineering-oriented management solutions.

Dr. Runkle has also investigated the roles of different disciplines within sustainability research, and notes that "including representatives from the social sciences and humanities in sustainability research may be challenging at first when the terms and scope of sustainability are broadened and defined, but the payoff is tremendous. Larger research perspectives tend to generate a much more robust solution to challenging sustainability problems." Dr. Runkle is eager to build cross-disciplinary bridges on the U of A campus to enhance his research and teaching programs.



### BAEG FACULTY

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## Biological Systems Engineering Hall of Fame inductee.

Lalit R. Verma, PhD., P.E., is the 2014 Biological Systems Engineering Hall of Fame inductee. Dr. Verma received his B.S. from J.N. Agricultural University, India, and his M.S. from Montana State University, Bozeman, with both degrees in agricultural engineering. He was the first Agricultural Engineering Ph.D. graduate of our department and received his degree in 1976 for his work on storage of mechanically formed hay packages developed under the guidance of Ken Von Barga.

Throughout his career, Dr. Verma has provided leadership in the development and promotion of biological engineering as a science-based discipline. In particular, he coordinated the transformation of small agricultural engineering programs at both Louisiana State University (LSU) and the University of Arkansas (UofA), public land-grant universities, into vibrant and growing biological engineering programs by providing leadership in the development of skill competencies and accreditation criteria.

He has also served as interim dean and associate vice president for academic programs from 2008 to 2010 at the U of A, Dale Bumpers College of Agricultural Food and Life sciences, and U of A Division of Agriculture, and managed college renovations and the implementation of distance education programs.

Dr. Verma is internationally recognized for his research in rice and forage post-harvest engineering and technology. He has served as principal or co-principal investigator on various sponsored research projects, and his numerous publications include refereed articles, proceedings papers, and book chapters. He is the recipient of the 2014 James R. and Karen A. Gilley Academic Leadership Award in recognition of his visionary leadership at two universities, for the successful curricular integration of biological engineering, and for his exemplary service to ASABE.

A 39-year member of ASABE, Dr. Verma has played a significant leadership role within ASABE through the years. He served as ASABE President for the 2013-14 year and is now the immediate Past President. A few of the numerous committees on which he has held office include Fellow, Crop & Feed Processing & Storage, Engineering & Technology Accreditation, Academic Program Administrators, and ASABE Foundation Board of Trustees. He served as a Member of the ABET Board of Directors representing ASABE from 2004-2010.

In addition to having been named Louisiana State University H. Rouse Caffey Endowed Professor, 1996 to 2001, Verma is a Fellow of the Institute of Biological Engineering and the American Institute of Medical and Biological Engineering. From ASABE he has also received two Presidential citations and the Ford New Holland Young Researcher award. He was named an ASABE Fellow in 1999.

### James R. and Karen A. Gilley Academic Leadership Award

Dr. Lalit Verma head of Biological and Agricultural Engineering for the University of Arkansas System Division of Agriculture, has been honored by the American Society of Agricultural and Biological Engineers for his leadership.

Verma was honored with the James R. and Karen A. Gilley Academic Leadership Award at the ASABE meeting held in July in Montreal. The award was established in 2011 to recognize academic excellence through service as a department head or chair.

"This recognition has a special significance for me as it recognizes the critically important role of an academic department head/chair of agricultural and biological engineering in a higher-learning institution committed to the land-grant mission," Verma said.

## In the Highlight



President Terry Howell, Jr. with Dr. Verma

## In Memoriam

*"My almost 43 years with the U of A, the College of Agriculture, the Division of Agriculture and the Agricultural Engineering/ Biological and Agricultural Engineering department have been part of the best career I could ever have dream about"*

*- Carl Griffis*

Donations for a scholarship in memory of Dr. Carl L. Griffis, may be made payable to: U of A Foundation, Inc. sent to Biological and Agricultural Engineering Dept, John White Jr. Engineering Hall Room 203, Fayetteville, AR 72701.

### Carl Griffis

#### Emeritus Professor of Biological and Agricultural Engineering



Carl Griffis, emeritus professor of Biological and Agricultural Engineering, passed away on Friday, Oct. 31, 2014. Dr. Griffis came to the U of A in 1968 as an assistant professor of Chemical Engineering, after spending two years as an engineer with Exxon. He worked in the department of Agricultural Engineering as a research associate, then an associate professor. In 1983, he became a professor of Biological and Agricultural Engineering. From 1992 until 1997, he served as head of the Department of Biological and Agricultural Engineering, and he served as interim head of that department from 2008 – 2010. Dr. Griffis retired in 2011.

During his career, Dr. Griffis was recognized several times for his outstanding teaching and research. He received the Teaching Award of Merit from the National Association of Colleges and Teachers of Agriculture and the Imhoff Award for Outstanding Teaching from the College of Engineering. He received the Halliburton Outstanding Teaching Award three times and the Halliburton Outstanding Research Award once. He was named the Outstanding Teacher for the Biological and Agricultural Engineering department twice, and received the John W. White Award for Outstanding Teaching twice.

"Professor Carl Griffis was a dedicated team-player who always looked out for the best interest of the students, his colleagues, and Biological and Agricultural Engineering alumni," remembered Lalit Verma, head of the Department of Biological and Agricultural Engineering. "His kind, untiring and selfless contributions through teaching, research and service of over 40 years to our department, university and the state of Arkansas will be greatly missed. He was a true gentleman who touched the lives of hundreds of young minds who fondly remember him. Many of his students turned out to be very successful professionals and citizens. Professor Griffis also provided academic leadership to our department at several critical junctures and helped maintain the high-quality programs that contributed to the land-grant mission of this great university."

A tribute celebrating the life of Dr. Carl L. Griffis was held on Tuesday, November 18, 2014 at 5:30pm In room 209 John White Jr. Engineering Hall.

## Students won AAFP Awards

Three graduate students under Dr. Yanbin Li's supervision, Zach Callaway, Sardar Abdullah and Lizhou Xu, won three of six awards in the AAFP (Arkansas Association of Food Protection) research paper competition during AAFP annual meeting, Sept 11-13, 2014, Fayetteville, AR.

Two prestigious awards were presented at the ceremony. Mike Sostrin of Walmart Stores, who served as AAFP's founding president in 2009, received the first AAFP Fellow award. Adam Baker, a graduate research assistant in the University of Arkansas food science department, received the Michael G. Johnson Graduate Endowed Scholarship for Excellence in Food Microbiology Research, Teaching and Peer Mentoring.

University of Arkansas food science students participated in a research poster competition, with their posters on display in the conference hall throughout the proceedings. Winners of the competition's categories were:

Vivione Rapid Detection Methods Poster Award -- **Lizhou Xu**  
SFC Intervention Honorable Mention Poster Award – **Zach Callaway**  
J.B. Hunt Honorable Mention Poster Award – **Sardar Abdullah**

## Food and Bio-Product Systems Engineering Field Trip

BENG 4743 Food and Bio-Product Systems Engineering. Sustainable bio-product engineering through biosystem design, analysis, modeling, control, and optimization. Life cycle phases for bio-products (food, fiber, feed, and fuel). System analysis of inputs and outputs of energy, water and mass for the purpose of producing and processing biomass for human uses. Advanced bio-process design topics to utilize enzymes, cells, tissues and organisms to create bio-products and methods for deactivating biological agents to preserve the quality and safety of food and other bio-products.

Group of students got to visit Post Foods LLC. Tour Plant at Frito-Lay, and wrapped the trip with visit to Riceland.



Left to right: Jared Schenebelen, Trent McKenzie, Barrett Knutson, and Matt McVey

Significant  
Student  
Accomplishment



### BENG 3653 Bio-Energy Tour

Group gets to visit Rice Research and Extension Center in Stuttgart, AR. Preview Thermo-Conversion by Sammy Sadaka. Tour Thermo-Conversion of Biomass Lab. Tour Rice Hull Gasifier and Crop Dryers at Riceland Foods. Tour AP Innovations. Tour Crop Drying Facilities at RREC. Tour Irrigation Sites.



The pictures above are of the students visiting the Rice Research Center, Riceland and Isbell Farms in Stuttgart Arkansas.

## Abstract to Contract Graduate Student Research Competition winners

Gurdeep Singh won second place in the Abstract to Contract Graduate Student Research Competition. Gurdeep Singh won second place in the A2C poster competition held on 14th November, 2014. His advisor is Dr. Dharmendra Saraswat. Gurdeep's presentation was titled "Water quality impacts of best management practices in L'Anguille River watershed, Arkansas."



Pictured Provost Sharon Gaber, Gurdeep Singh and Chancellor Gearhart

Kalavathy Rajan won first place in the Abstract to Contract Graduate Student Research Competition

Kalavathy Rajan won first place in the A2C poster competition held on 14th November, 2014. Her advisor is Dr. Danielle Julie Carrier. Kalavathy's presentation was titled "Cellulosic Ethanol: Enhancing the Saccharification Efficiency of Rice Straw via Reduction of Cellulase Inhibitors"



Pictured Provost Sharon Gaber, Kalavathy Rajan, and Chancellor Gearhart

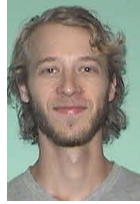


## Arkansas Section of ASABE Meeting Highlights

The Arkansas Section of ASABE annual meeting was held on Oct 3, 2014 in Fayetteville, Arkansas. More than fifty participants, including 25 undergraduate students, participated in three morning presentations, a business meeting and two technical

tours in the afternoon. Participants toured the manufacturing plant of Pacific Vet Group, a local company specialized in the development and manufacturing of probiotic products for commercial poultry. The students were excited to see application of engineering skills in the design and development of biological products. The group also toured the complex of solar and thermal drying of biosolids from the City of Fayetteville's wastewater treatment plant. The system has allowed the City to avoid landfill disposal and to produce a marketable soil amendment. The project earned a 2012 Arkansas Business City of Distinction for Green / Energy Conservation Initiatives. The meeting was well received by participants.

**NEW  
GRADUATE  
STUDENTS**



**Adrian  
Beirise**



**Jamie  
Gile**



**Colt  
Oade**



**Zachary  
Simpson**



**Mouli  
Koppolu**

**NEW FACULTY  
AND STAFF**



**Benjamin Runkle**  
Assistant Professor  
Associate



**Mansoor Leh**  
Instructor



**Rifati Raindriati**  
Admin Specialist  
III



# Scholarship Donation Opportunities

Please accept my contribution to the following scholarship(s). My check for \$ \_\_\_\_\_ is enclosed.

**Billy Bryan** Scholarship Fund \_\_\_\_\_

**Joel T. Walker** Memorial Scholarship Fund \_\_\_\_\_

**Carl L. Griffis** Memorial Scholarship Fund \_\_\_\_\_

Biological and Agricultural Engineering **General** Scholarship Fund \_\_\_\_\_

Biological and Agricultural Engineering **Student Support** Fund \_\_\_\_\_

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE: \_\_\_\_\_ E-MAIL ADDRESS: \_\_\_\_\_

Remit Payment To: *Dept of Biological & Agricultural Engineering*

*203 Engineering Hall*

*University of Arkansas Fayetteville, AR 72701*