

Purdue University

Agricultural & Biological

ENGINEERING

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The Purdue Chapter of ASABE will host the Midwest Regional Rally March 4-5, 2011. We expect to have representatives from 10 Agricultural Engineering programs from across the Midwest.

From Department Head - Bernie Engel

It is hard to believe but the fall semester has already drawn to a close. Purdue Agricultural and Biological Engineering (ABE) alumni, students, staff, and faculty continue to excel. Some of the exciting accomplishments and opportunities for the ABE "family" are highlighted in the newsletter.

Student enrollments in our programs continue to be at or near all time highs. Total undergraduate enrollment is above 300 and graduate enrollment is above 90. Opportunities for students pursuing degrees in Agricultural Systems Management, Agricultural Engineering and Biological Engineering are outstanding.

December commencement was December 19. Bruce Cooley, a graduating ABE student, was the student responder, continuing the success of students from our program by being selected for this highly competitive and prestigious opportunity. Bruce did a great job! In addition to talking about ABE in introducing Bruce, President Cordova also highlighted ABE's rankings in her remarks.

There are several changes in ABE staff that I would like to note. Yvonne Hardebeck (hardebey@purdue.edu) now has responsibilities for job placement and internships. If you have job opportunities including internships that would be of potential interest to our students, please let Yvonne know. Carol Sikler is the alumni point of contact and is responsible for the newsletter. Let Carol know if you have updated contact information, information to share in the newsletter, or have questions (sikler@purdue.edu).

I routinely hear from some of you that you'd like to come back to talk to a class or engage with students and faculty in some way. Our students have a great deal they can learn from you, so let me or others know and we will try to help facilitate such opportunities. I hope to see you on campus in the near future.

Hail Purdue!



Bernie

Our Mission

"To prepare students, citizens, and the industry for the future through innovative education and extension/outreach program, and the discovery of knowledge."

Congratulations to our December Graduates!

Graduate Students

Rose Prabin Kingsly Ambrose (PhD)
John Andruch (MS)
Brittany Book (MS)
Kristopher Delgado (MS)
Zita Holland (MS)
William (Brian) Hoover (PhD)
Richard Klop (PhD)
Chetan Maringanti (PhD)
Cedric Ogden (PhD)
Nathan Utt (MS)
Christopher Williamson (PhD)

Undergraduate Students

Sheldon Alt - ASM
Kyle Brooks - AE
William Coffman - ASM
Bruce Cooley - AE
Charles Dewes - AE
Adam Dillard - BE
Zach Dougherty - ASM
Nick Fueger - ASM
John Marchino - ASM
Zachary Shelton - ASM
Justin Shoufler - ASM
Ryan Smith - AE
Jacob Young - ASM

2010 Advisory Board Meeting Report

On November 12, 2010, an Advisory Board was convened at the ABE Building to evaluate progress since the last ABET report (2007) in anticipation of the next accreditation cycle (2013) and to provide input on the ASM curriculum. Nineteen alumni participated, bringing their varied expertise back home to share in our continuing quest for excellence. We would like to thank the following alumni who were able to join us: Chris Allen, Mark Bowers, Jeff Cannady, Suzie Delay, Michael Duncan, Ryan Engleking, Brad Fife, Ryan Howard, Dennis Kim, Jack Lashenik, Brad Meyerholtz, Chelsea Mohler, Amy Penner, Gerald Powell, Jon Rettinger, Will Smith, Scott Strickland, Becky Thompson, and Jacob Walker.

The Board reviewed changes that the faculty had discussed to our Educational Objectives and Program Outcomes. The draft of changes recommended can be seen on the website ([click here](#)). We welcome your input! If you would like to comment or make suggestions, please send an email to sikler@purdue.edu.

2010 ABE Faculty Recognitions and Awards

ABE Outstanding Department Teacher - Agriculture - Dennis Buckmaster
ABE Outstanding Department Teacher - Engineering - David Umulis
ABE Outstanding Department Counselor - John Lumkes
Teaching For Tomorrow Fellowship - David Umulis
ASABE Educational Aids Blue Ribbon Award - Natalie Carroll, Don Jones, and Jane Frankenberger

ABE Wish List: When planning your year-end giving, please consider remembering ABE! Drs. Buckmaster, Krutz, Ess, Field, and Okos are all currently using donated equipment for teaching, safety training, and field research projects. Our Biological Engineering faculty are always in need of lab equipment from simple hot plates to complex spectrometers. Before discarding old equipment, please check with your favorite faculty member(s). There is also a constant need for student scholarships. We will be happy to receive Holiday gifts anytime.

Natalie J. Carroll

Professor in ABE and Youth Development and Agricultural Education

Professor Carroll was honored with the 2010 Mid-Career Award from the Purdue University Cooperative Extension Specialists Association (PUCE-SA). Her leadership in Extension programming has had an impact on more than 12,000 youth and adults in the natural resources and environmental areas. She leads 4-H programs in ten areas, including aquatic science, entomology, forestry, geology, soil and water conservation, weather, and wildlife. In the ABE department, she teaches ASM 336, Environmental Systems Management.



Monika Ivantysynova

Maha Professor of ABE and ME

Dr. Ivantysynova was doubly-honored this year: She was awarded the Joseph Bramah Medal by the Institution of Mechanical Engineers' (UK) Mechatronics Informatics and Control Group. The Joseph Bramah fund was established in 1968 at the instigation of Mr. Frank Towler, a Fellow of the Institution (1932-1977) who arranged for its support by industry to commemorate Joseph Bramah, the inventor of a patent lock, the hydraulic press and other inventions concerned with pumps, water supply, and the production of pipes and tubes by the extrusion process. Dr. Ivantysynova was honored for her outstanding commitment to international fluid power research and education, particularly in the field of hydrostatic pumps and motors. She was also awarded a Doctor Honoris Causa degree from her alma mater, the Slovak University of Technology in Bratislava, for her outstanding lifetime achievements in fluid power and her dedication to the university.



Rabi H. Mohtar

ABE Professor

Dr. Mohtar received the ASABE Kishida International Award at the ASABE Annual International Meeting in June. This award is given to recognize outstanding contributions to engineering, mechanization, and technology-related programs of education, research, development, consultation, or technology transfer that have resulted in improved food production, living conditions and/or education for people living outside the United States. The award is endowed by the Shin-Norinsha Co., Ltd. of Japan in honor of Yoshikuni Kishida, founder of the firm.



Further Details Available On Our Web Page At:
www.purdue.edu/ABE

Alum News

Bob Malcomb (AE '78)

"I was told they run freshmen engineers through Purdue like cattle through a slaughter house. The professors seem to be PROUD of how tough they make it. When I attended my first Agricultural Engineering class, I was shocked. They were REALLY nice guys. They became my heroes. I looked forward to class. They were so interesting and practical. I will always be thankful to the Ag Engineering staff. They took care of us. When I was in the building, it felt like 'home.'"

On January 12, 2010, a 7.4 Richter earthquake hit Port-au-Prince, burying 300,000 people, injuring 500,000 more, and leaving 1.5 million homeless. Bob recently returned from 8 days in Haiti with Engineering Missions International (EMI), a volunteer organization that travels the world designing hospitals, schools, water treatment plants and other projects (EMIUSA.org). He went there to help design homes and community buildings that would be less dangerous in earthquakes. They also needed Ag Engineers to help them develop crop production and harvest systems, water storage, and irrigation. Although Haiti "is certainly poor, they are not starving in the street, like American TV makes it sound...they are smart, industrious, healthy people."

A second trip took Bob to the Ukraine to teach Post Frame Construction. They traditionally construct buildings out of 200-lb blocks that must be lifted into place by crane. Large buildings cost millions of dollars and take years to build. A large pole barn can be built for \$12,000 and completed in 2-3 weeks. Borkholder Buildings in Napanee, IN, supplied 3 building kits. The Ukraine contractors watched in amazement as the buildings went up, seemingly overnight. A newspaper proclaimed post buildings that we have been using for 200 years as "New Technology from America." "The Ukraine volunteers built



3-story house collapsed in the January earthquake

three buildings, then went out on their own. They started construction companies. Their operating costs are so low they get any project they bid on. The three building kits from the USA have now turned into 23 community buildings all over the Ukraine... The importance cannot be overstated. They have no social net to catch the poor or helpless. These buildings are in use 24 hours a day as soup kitchens, clothing distribution, alcohol and drug rehab, churches, helping repatriate Jews to the Holy Land, medicine distribution" and countless other uses.

"Ag Engineers are uniquely qualified to make a difference, all over the world," says Malcomb.

Phil Raney (AE '57, MS '59)

I worked for NASA (Langley Research Center) for 28 years. I was a branch head with 15 to 20 people in my branch and several PhDs in the group. We conducted research on a wide range of structural dynamics and acoustics problems in a wide range of areas including both spacecraft and aircraft. It was like having my own personal sandbox to play in for 28 years. The education I received at Purdue prepared me. I started in Ag Engineering and ended up, literally, as a rocket scientist.

Overall, I am just an average graduate who was lucky to live in Indiana just 150 miles from Purdue and could hitchhike to and from school. My out-of-pocket expenses my freshman year were just \$634 since I earned my room living at the R.B. Stewart's residence.

But, the main point I would like to make is the profound effect my experiences at Purdue had on me. Within a few weeks I was changed forever. And it just kept on. Hearing the Purdue marching band play Hail Purdue never fails to bring tears to my eyes and it always will. Purdue helped me prepare for life.

Professor Bruce McKenzie (emeritus ABE faculty member) had eye surgery on December 6 to finish correcting a problem that began about 50 years ago. He wants to let his friends and students know that he feels great, that he can see better than expected, and that he is healing nicely with little to no discomfort!

Betsy (BS '96, PhD '01) and **David** (MS, PhD - ME) **Willis** welcomed a new son in July, David Alan Willis, Jr. (right)



David Alan Willis, Jr.

Steve Lyons (BS '01) is a Senior Lecturer in the Quantitative Environmental Hydrology Department of Physical Geography and Quaternary Geology at Stockholm University. Currently, his work focuses on improving our conceptual understanding of catchment-scale hydrological and biogeochemical flux dynamics and their coupled responses to climate change in northern latitude basins. This research involves using various hydrological modeling approaches across scales in combination with field observations and experimental studies at the well-controlled experimental Kryclan (boreal) and Abisko (tundra/taiga) catchments in northern Sweden.

Kevin A. Price (BS '00) and **Lori E. (Tuttle) Price** (BS '00), Cedar Falls, IA, welcomed the birth of their third son, Matthew Richard, on June 15.

Mark Bowers (BS '03) was awarded the ASABE New Faces of Engineering Award at the 2010 Annual Meeting. Mark is employed by John Deere Harvester Works in East Moline, Illinois.

Ian Radtke (MS '05) was awarded the ASABE New Faces of Engineering Award at the 2010 Annual Meeting. Ian is employed by Caterpillar in DeKalb, Illinois.

Elizabeth (Hilkert) Colby and Lt. Jeffrey Colby married in July. Liz has passed her PE and they have bought a house in Charleston, SC. (right)



Jeff and Liz Colby with her sister and brother

Tushar Sinha (PhD '08) will be joining the Department of Civil Engineering at Northern Carolina State University (NCSU) as a Post-doctoral Research Scientist. He will be working on stream flow forecasting using the VIC model and reservoir optimization for sustainability of fresh water resources. Tushar also wants to share that he and his wife have been blessed with a baby girl named Tanishka.

Srinivasulu Ale (PhD '09) joined the Texas AgriLife Research and Extension Center as Asst Professor (Geospatial Hydrology, part of the Texas A & M University System) on December 9, 2010. After completing his Ph.D. in Agricultural and Biological Engineering at Purdue, he worked as a Post-doctoral Research Associate with Dr. Laura Bowling in the Department of Agronomy.

In Memoriam

Rolland (Ron) Z. Wheaton (retired ABE faculty member), June 7, 2010

Robert O. Martin ('57) September 12, 2010

Richard L. Johnson ('56), September 21, 2010

Welcome to the ABE electronic newsletter!

This is your newsletter - we depend on you to tell us what you like, what you don't like, topics that you would like to see addressed, and any news that you would care to share with your fellow alums. Please feel free to submit items at any time - they will be included in the next issue!

Our Students - Around the World!

Purdue Day at China Agricultural University

Drs. Marshall Porterfield and Jiqin Ni joined the delegates from Purdue University, led by President France Córdova and Dean Jay Akridge, in visiting China Agricultural University (CAU) in Beijing in May. They had group meetings and discussions with their Chinese counterparts in biological engineering and water conservancy to prepare for future collaboration in research and education. May 21 was declared Purdue Day at CAU. Dr. John Lumkes and his 19 Purdue Study Abroad students, along with the Purdue delegates, attended the Purdue Day that included a Global Food Security Forum and Exhibition, Purdue CAU agreement-signing ceremony, and a Gala Night party.



Dr. Lumkes and Purdue students at CAU

Construction of a Large Diameter Community Well in Agrippa Todji-Togo

Laurent Ahiablame

This project began when a team of ABE students sought to bring water-related aid work to rural communities in developing countries. The project successfully facilitated the construction of a reliable, bucket-drawn community well in the locale of Agrippa Todzi, Togo. Although all 2500 residents of Agrippa Todzi and its five outlying villages cannot have access to the 2.2 m diameter well, it was successfully completed and is currently providing safe drinking water to nearly 500 residents. Our project was executed in conjunction with the Association of Togolese Volunteers at Work (ASTOVOT), a non-government organization that mobilizes local and international volunteers in service projects throughout Togo. The four ABE undergraduate students (Jacob Ohlemiller, Eduardo Anzueto, Emily Stein, and Samuel Noel) assisted in proposal writing and conducting other preparations for the trip, while Laurent Ahiablame, an ABE graduate student, initiated and coordinated the project. Funds were sufficient to permit three of the undergraduates to spend ten days in Togo, of which eight were spent in or near Agrippa Todzi.



Emily, Jacob, Laurent, and Sam in Togo

France: In August 2010, Anne Dare (ABE PhD student) and Elizabeth Trybula (ABE MS student) traveled to Montpellier, France for five days for a short course on Integrated Assessment of Agricultural Systems at the Institut Agronomique Mediterranéen de Montpellier (IAMM) in coordination with the Argo2010 Congress. During this time, Anne and Elizabeth spent three days in the classroom learning about concepts of integrated assessment of agricultural systems at a regional level, offering theoretical knowledge and practical understanding of the methods, models, and tools used in this field, and providing an awareness of how such tools could aid in decision making processes. The course was attended by students from around the European Union and West Africa.

Global Design Team (GDT) Projects

Anne Dare

Cameroon – Drs. John Lumkes and Klein Ileleji (ABE) served as team advisors, along with graduate student Laurent Ahiablame. The African Centre for Renewable Energy and Sustainable Technology (ACREST) of Bangang, Cameroon, has hosted three projects over the last two years. The Basic Utility Vehicle (BUV), developed by the Indianapolis-based Institute for Affordable Transportation (IAT), has been the focus of a team for the past two years. BUVs are simple, low-tech, low-cost vehicles to serve in rural areas of Africa and Central America with the goals of increasing productivity, agricultural capacity and efficiency, trade, education, and health care. During the team’s visit to Cameroon in 2009, it laid the foundation for the 2010 projects in hydroelectric and wind energy. These teams assessed the ACREST site, determined capacity for energy generation and shared a design for a low-cost wind turbine that could be installed throughout the region. In May 2010, 13 students from ABE and ASM participated in these projects (Adam Bell, Lee Fordice, Mike Genovese, Josh Heber, John Hobbs, Heath Hook, Edmond Hyde, Tom Nesbitt, Jeremy Simpson, Ryan Smith, Austin White, Charles Young and five of them traveled for 2-3 weeks to Cameroon to further research and implement their designs



ABE students assisting in BUV production.



Bruce Cooley and Jeff Wojcicki in Kenya

Kenya –Moi University, in partnership with Aqua Clara Foundation, a not-for-profit organization, partnered with Purdue GDT to develop a method to provide potable water for St. Catherine’s Girls’ School in Eldoret, Kenya. The team developed and tested reactors to reduce concentrations of microbial pathogens and fluoride in the water supply, and installed a full-scale reactor in situ. In May 2010, eight ABE seniors participated in this project (Philip Burbrink, Bruce Cooley, Nan Hammel, Katie Jones, Mark Moehling, Sarah Rutkowski, Kyle Vester, Jeff Wojcicki) and seven traveled to Kenya (Burbrink, Cooley, Jones, Vester, Rutkowski, Wojcicki, Moeling) Dr. Ernest Blatchley (CE) served as team advisor. .

Palestine – Palestinian Hydrology Group (PHG) continued work that began in 2008 by supporting the Purdue team that developed a method for assessing the water resources of the city of Jericho, including environmental and socio-economic aspects of efficient water management. Birziet University in Ramallah also provided

a team of students to work with the Purdue team. The work is funded in part by Aramex Corporation’s Sustainability and Compliance office. In May 2010, 4 four ABE seniors (Anne Dare, Charlie Dewes, Jennifer Lai, Josh Seidner) participated in this project and three traveled to Palestine. Furthermore, after working closely with Purdue University ABE for three years, PHG’s Project Engineer, Amjad Assi, decided to come to Purdue ABE to pursue his PhD.



Anne Dare, Dulcy Abraham (CEM), Charlie Dewes, Amjad Assi, and Josh Seidner in Palestine

Mohtar to Lead Qatar Initiative

Professor Mohtar has been asked to launch the Qatar Environment and Energy Research Institute. To provide the leadership necessary for this effort, he will be taking a leave from Purdue beginning in January. This unique opportunity will allow Professor Mohtar to impact important research efforts in Qatar and beyond, including potential opportunities with Purdue faculty and staff.

The goal of the Qatar Environment and Energy Research Institute is to ensure the sustainable development of Qatar by providing a diversity of energy sources while protecting the environment of Qatar by supplying cleaner and safer energy. The Qatar Environment and Energy Research Institute will explore promising science and research topics in environmental and energy areas such as nanomaterials, fuel cells, reservoir modeling, chemical separation technologies and large storage for energy. Research programs of the institute will include:

- * Water quality and water conservation
- * Renewable Energy Research
- * Built Environment Research
- * Nanotechnology and Nanoscience Research
- * Materials Science Research
- * Air Quality and Climate Change Research
- * Water Desalination Research

Congratulations Professor Mohtar on this opportunity!

MARK YOUR CALENDARS FOR SPRING EVENTS!

*Purdue hosting ASABE Midwest
Regional Rally, March 4-5, 2011*

*Senior Capstone Poster Contest and
Alumni Awards
April 21, 2011*

*Spring Commencement will be May
13 (Engineering) and 15 (Agriculture),
2011.*

*see www.purdue.edu/ABE
for additional information!*

ABE Alumni! We Want To Hear From You!

*Make sure we can find you -
send your updated information
and e-mail address to
Carol Sikler at
sikler@purdue.edu*

