NACTA
north american colleges and teachers of agriculture
connect | develop | achieve

#1. Defining a Global Learning Environment in Higher Education: A Case for the Global Seminar Project

James McKenna and Tamara Savelyeva
Virginia Tech

The global learning environment (GLE) was defined in the Global Seminar Project (GSP) to address the issues of change in higher education under the pressure of globalization. A combination of constructivist theory and a deep learning concept provided the framework for answering the following questions: What project components make the course global? and in what ways does Global Seminar contribute to deep learning? Three forms of data collection, including in-depth, open-ended interviews of 20 GSP's instructors; 11 direct observations of the GSP classroom; and analysis of GSP's written documents and artifacts. The research findings brought about two co-dependent understandings of the GLE as a conceptual and practical model. Applied to an educational practice, GLE forms a constructive and participatory model: shifting from mass-production knowledge to genuine quality education based on the values of teachers.

Key words: global learning environment, deep learning

#66. Networks of Communication among Students in a College of Agriculture Course

Don Edgar, Leslie Edgar, and Timothy Killian
University of Arkansas

In today's higher education classrooms, students can readily access information and communicate with their peers through diverse formal and informal means. These student interactions can aid in knowledge acquisition and immediacy to their peers and occur anywhere and at any time; whereby proximity being non–essential. Constructivism emphasizes the creation of understanding through experience. Furthermore, it has been explained that students constantly create knowledge through personal experiences. Social interactions have been espoused as affecting behavior. These interactions must be recognized as tying experience to learning. Social network analysis (SNA) focuses on understanding the nature and consequences of links or ties between individuals and/or groups. This longitudinal study consisted of all students from the fall 2008 semester at the University of Arkansas (N = 117) enrolled in an introductory college of agriculture class. Data were collected at the beginning and end of the semester from all registered students. A researcher–developed instrument was used to assess interaction(s) between students and self reported technology skills. This study defines how networks change for incoming freshman and what implications the networks had on teaching and learning. It further evaluates their perceived technology skills and means of communication. When examining data of initial networks formed, a huge discrepancy of detailed networks is seen. Although commonly seen in courses of this type, data from this study will be used to validate those thoughts and evoke practices to encourage more social learning processes.

Key words: communication, social networking, learning, interactions

#69. Utilizing Background Knowledge Probes: What do Students Know about Safety in the Mechanics Laboratory?

Ann Marie VanDerZanden and Michael Pate
Iowa State University

University instructors are faced with the ongoing challenge of how to balance time demands. The allocation of teaching time for course material is one such burden. Background knowledge probes are classroom assessment techniques that have been suggested to help teachers determine the most effective starting point for a given lesson and the most appropriate level at which to begin instruction. An experimental course, Methods for Teaching Agricultural Mechanics, utilized this assessment technique to determine students' level of knowledge regarding safety in agricultural mechanics as a means to focus formal instruction towards students' safety knowledge deficiencies. Six of the eight students enrolled in the course participated in this study. Prior to beginning safety instruction a background knowledge probe consisting of 41 safety questions was given to students. Of the 41 questions, the seven related to safety equipment, safety color codes, safe laboratory attire, safe working conditions, and how to interact safely while working in the laboratory were answered incorrectly by one or more students. After a week of instruction, the same probe was given to the students. Results showed improvement of student knowledge regarding these prior deficiencies, however, two students showed new deficiencies in safe welding practices. With the exception of this one question, students improved their overall knowledge regarding

safety in agricultural mechanics. Specifically addressing the deficiencies seen in the background knowledge probe was beneficial to student learning.

Key words: knowledge probe, pre-test, post-test, classroom assessment

#73. Using Action Learning Sets to Assess the Effects of Entrepreneurship Programs on Students' Entrepreneurial Behaviors

Kiumars Zarafshani
Razi University, Iran

Cultivating an enterprise culture is one of the highest priorities in Iran's higher education system. Whatever their outcomes are, previous studies have shown that entrepreneurship courses can develop an entrepreneurial mentality among students. This qualitative research aims at providing an analytical understanding of the influence of entrepreneurship courses on entrepreneurial behavior as perceived by entrepreneurial educators in College of Agriculture. We chose to address entrepreneurial educators instead of students to obtain an assessment of such programs' impact. We thus conducted 12 action learning sets with five entrepreneurial educators, which provided us with two types of data: First, a description of curricula design, teaching strategies and pedagogical approach; second, an evaluation of the perceived influence of entrepreneurial teaching among 36 students who have taken the entrepreneurship course in College of Agriculture. The purpose of the action learning set was to establish an interactive environment in which each educator shares their evaluative judgments with one another. Even though we did not have a control group, the results from action learning sets strongly suggest the effectiveness of entrepreneurship program on behavioral level. For example, during action learning sets, educators described how their curricula design, teaching strategies, and subject matter motivated students to start-up a business. Moreover, the action learning sets made it possible for entrepreneurial educators to collaboratively assess entrepreneurship programs and thus became a cooperative learning opportunity for all educators.

Key words: Action learning sets, entrepreneurship education, agriculture, mentality

#74. Preparing the Undergraduates to be Successful in Research

Sha Li, Yong Wang, and Yujian Fu
Alabama A&M University

In the summer of 2008, the Department of Natural Resources and Environmental Science at Alabama A&M University (AAMU) conducted an REU program (Research Experience for the Undergraduates). This program provided a good learning opportunity for the undergraduate students various universities to work on researches in science subjects of natural resources and environmental science. Students experienced the learning activities in field experiences, quantitative statistic methods, and qualitative lab methods to collect and analyze data to draw findings by using cutting edge technologies. The uniqueness of this REU program on the AAMU campus is that the majority of the student participants were minority students, and there were also two high school students recruited. The students' research presentation displayed that they were very successful in research design, data collection and data analysis. The descriptive statistics data and the open question survey indicated that both faculty and students showed high satisfaction about the research results and their attitudes were very positive toward the REU experience in terms of acquisition of the subject knowledge, research skills, social network, self-image, and the increased confidence in pursuing higher degrees in natural resources and environmental science. The REU experience also contributed to the faculty/staff's better understanding of how to teach minority students to conduct scientific research successfully and how to attract more undergraduate students into the disciplines of agriculture, natural resources and environmental science.

Key words: undergraduate research

#82. Windward Community College Plant Biotechnology Graduates – Accomplishments and Contributions

Ingelia White
Windward Community College

Agribiotech companies in Hawaii need highly trained and skilled biotechnologists. Windward Community College has developed and has offered an Academic Subject Certificate in Plant Biotechnology (ASC-PB) since 2002. The program is supported through USDA-CSREES-SERD grants. A total of 26 credits are required to receive the certificate. The graduates are prepared for careers in biotechnology, bioprocessing entrepreneurship, and transfer to higher degree institutions, majoring in disciplines such as agribiotechnology, horticulture, biology, pharmacy and pre-medicine. Hands-on learning and research training are accommodated through campus biotech facilities: the Tissue Culture and Plant Biotech Facility, the Kuhi La'au – Tropical Plant and Orchid Identification Facility, the climate–controlled greenhouse, and the Bioprocessing Medicinal Garden Complex. Collaborative research, training, and mentorships have also been established with research institutions and biotech companies to facilitate immediate employment. An average of seven ASC-PB graduates are produced per year. Forty-five percent of graduates have entered the plant biotech workforce, 67% have transferred to higher degree institutions, and 33% have become bioprocessing entrepreneurs.

The total number reflected is higher than 100% due to graduates engaging in multiple roles, e.g. student as well as biotech employee. Six undergraduate student research papers have been published in scientific journals. In addition, the first in a series of Ethnopharmacognosy booklets containing student research projects have been published.

Key words: plant biotechnology, pharmaceutical, nutraceutical, ethnopharmacognosy, bioproducts

#83. Student Perception on Virtual Office Hours (VOH)

Kimberly Moore
University of Florida

Ways to increase student/instructor interaction in web and distance education courses include the use of email, chat rooms, phone conversations, and virtual office hours (VOH). I define a VOH as synchronous contact between the instructor and a student using computer based microphones/cameras and a communication software program. My objective was to survey student perception on the use of VOH in my web course Retail Florist Shop and Garden Center Management. Students enrolled in the spring 2008 and summer 2008 sections were asked to complete a five question survey (76% response rate). Student responses to the survey questions were ranked and the rankings were analyzed using ANOVA. All students surveyed agreed that contact between the instructor and student was either very important (5.0) or important (4.0). The preferred methods for interacting with professors were email (4.0) and chat rooms (3.0) while phone was the least preferred method (1.0). The students rated their experience with VOH as excellent (4.0) or above average (3.0). The students who rated their experience as average or OK also were the students who had trouble logging into the virtual office or had trouble with their camera/microphone (spring 2008). When asked to compare their experience in the virtual office to a traditional office meeting, students remarked that they enjoyed the virtual office (4.0) or that it was similar to traditional office meetings (2.0). Students did not think that the technology interfered or hindered their learning experience. From these preliminary surveys, it appears that in addition to email and chat rooms, the use of virtual office hours give instructors another venue for interacting with students in web courses.

Key words: web courses, interaction, technology

#88. Taking the Profession to New Heights

Amy Smith and Misty Lambert
University of Missouri

Have you ever found yourself tossing tennis balls, building bridges, handling toxic waste, or climbing 60 feet into the air while at a professional conference? If you attended the 2007 North Central American Association of Agricultural Educators, the answer may be "yes." As the conference host, the University of Missouri aimed to incorporate recreation and social activities with a primary goal of educating through experience. Participants were provided opportunities to explore and create knowledge using all their senses. In addition, they were asked to reflect on their learning and its application - a critical piece of experiential education. Faculty, graduate students, and trained university employees from the host institution facilitated the activities. They supervised the experience and led debriefing discussions. Facilitator guides, were provided for all participants, which outlined the objectives, group size, time required, supplies needed, physical setting, process, variations, debriefing questions and references. Four hours were allotted for the experience. Sixty-six faculty and graduate students attended the conference, with nearly all participating in this professional development session. All attendees seemed to enjoy the opportunity to interact with one another. Comments were expressed by participants regarding the innovativeness of the activity. Participants benefited from experiencing new learning activities that they could use at their home institutions. It is recommended that future conference planners seek to incorporate similar offerings. Not only would such offerings expand the leadership development opportunities for attendees, they would also present an opportunity for socialization while engaging in discipline-related activities.

Key words: experiential learning, professional development

#89. Job Satisfaction and Teacher Efficacy among Agricultural Educators

Rebekah Epps, Ryan Foor, and Jamie Cano
The Ohio State University

An individual's beliefs in competence play a major role in factors of job satisfaction. Teachers who believe in their ability to positively influence students are generally more satisfied. However, when a certain teacher leaves the profession, a level of job dissatisfaction is implied. It is necessary to understand factors related to job satisfaction and teacher efficacy. The objectives of this study were to describe secondary agricultural educators' demographic characteristics; describe the level of job satisfaction and teacher efficacy; and determine the relationships between the demographic characteristics, job satisfaction, and teacher efficacy. Membership of the National Association of Agricultural Educators served as the population for the study. A random sample of 361 individuals was drawn based on an alpha level of .05. Data were collected in two waves resulting in a 49% response rate. The researchers controlled for non-response error. Overall, agricultural educators were satisfied with their jobs. In terms of teacher efficacy,

agricultural educators possessed a high level of teacher efficacy. Negligible and low relationships were found between the demographic characteristics and job satisfaction and teacher efficacy. Substantial relationships were found between job satisfaction factors and teacher efficacy factors. The strong relationships between job satisfaction and teacher efficacy factors provide insight to factors related to teacher retention.

Key words: teacher efficacy, job satisfaction, secondary agricultural education

#90. Statewide Community College Soils Curriculum
Michael Swan
Washington State University

The primary goal of the Agriculture Center for Excellence is to support the Agricultural Industry in the State of Washington by enhancing the agriculture and agriculture-related educational programs offered at Community Colleges and Technical Colleges. By developing partnerships with key industry members and economic development agencies in the Agricultural Industry, the Center develops innovative training programs that help meet the emerging training needs. This includes the expansion/strengthening of existing programs and creation of new program options to meet the education and training needs of an industry that now includes rural, urban and related agriculture dimensions. In 2006, the ACE held several meetings where discussions were held with 25 faculty from ten community and technical colleges (CTCs) across the state about courses that were common across many degrees and disciplines. Basic Soil Science was identified as one of those courses. A follow-up meeting was held with instructors in the Soils programs at the CTCs and Washington State University personnel. At this meeting, the faculty identified several core topics which they felt needed to be included in any soils course taught in the college system in the State of Washington. They also felt that it was important for a course in Basic Soils to have a laboratory component to the instruction. They developed a list of laboratory topics that they felt should be covered when instructing a course in Basic Soils. (The Basic Soils Manual and Outline will be made available during the poster session and will be made available free of charge to participants via a download.)

#96. Preparing Future Secondary Agriculture Teachers to Teach Students with Learning Disabilities
Paula Faulkner
North Carolina Agricultural and Technical State University

Connie Baggett
The Pennsylvania State University

Agricultural education has evolved from a once "strictly for farmers and rural persons" program to a more diverse, multicultural program. As a result, the enrollment of students with disabilities has increased and the expressed needs of pre-service teachers to receive additional support for teaching students with learning disabilities. This study examined the practices covered in pre-service programs to prepare pre-service teachers to teach students with learning disabilities. The objectives were: 1-What professional/personal experiences do teacher educators and pre-service teachers have relative to working with students with learning disabilities? 2-What practices do teacher educators cover in pre-service programs to prepare pre-service teachers to teach students with learning disabilities in secondary agricultural education programs? and 3-What practices do pre-service teachers receive in pre-service programs to teach students with learning disabilities in secondary education programs? A purposive sample of agricultural education teacher educators and pre-service teachers were selected for the study. Survey instruments were developed to collect data. Descriptive and inferential statistics were used to analyze the data. The study revealed that both groups reported cooperative pairs/groups as the most covered instructional technique and extended/extra time as the most covered accommodation in pre-service programs. Pre-service coordinators ($p=.062$) and teacher educators ($p=.02$) whose programs received accreditation from their State Department of Education and NCATE covered more accommodations. It is recommended that teacher education programs designate one faculty member as the special education contact for the program and provide in-service and/or pre-service training for pre-service teachers during and upon completion of their pre-service program.

Key words: teacher education, special needs, students with learning disabilities, agricultural education

#104. Collaborative Development of Global Fiber, Fabric and Related Products Industry based Problem-Solving Modules for Undergraduate Curricula

Nancy Hodges and Gwen O'Neal
University of North Carolina at Greensboro

Elena Karpova
Iowa State University

Jane Hegland
South Dakota State University

Kittichai Watchravesringkan
University of North Carolina at Greensboro

Sara Kadolph
Iowa State University

This three-year project addresses the growing need for problem-solving from a global perspective within the fiber, fabric and related products manufacturing and distribution workforce. The project is being conducted through collaborative partnerships among faculty at three U.S. institutions and faculty at collaborating institutions in Thailand, Australia, and Russia, as well as industry and trade representatives in the collaborator countries.

We are currently in Phase II of this three-phased project. Phase I involved the collection and analysis of data from interviews conducted with industry professionals within the US, Russia, Thailand, and Australia. As will be discussed in the presentation, input from participants was sought regarding the skills and abilities needed by graduates, and, in Phase II, is currently being used to shape the design of globally-based learning opportunities and projects that will take the form of modules to be introduced across the fiber, fabric and related products curricula. Phase III will conclude the project with implementation of the modules and assessment of module content relative to the project goals. Integrating cutting-edge web-based instructional technologies, the modules are being designed to bring courses up-to-date by infusing research based on relevant industry issues, and in a manner that addresses the inherently global nature of these issues. Project objectives were developed to be interrelated to ensure that the products and results of the project are relevant to industry needs and will prepare the future workforce through breadth and depth of exposure to real world industry issues and challenges requiring global problem-solving skills.

Key words: global learning, fiber industry, fabric industry, workforce

#107. From Problem Solving to Problem-Based Learning: Exploring Theories, Approaches, and Strategies

Jolene D. Hamm and Thomas Broyles
Virginia Tech

Previous researchers have identified problem solving as a key component for the development of a productive functioning member of society and through exploration of the literature a foundation for the implementation and assessment of the problem solving approach emerges. The researchers provided an exhaustive review of the literature describing the problem solving approach, the theoretical basis of problem solving, current research, and the need for additional research in the area of assessment. From Newell and Simon's cornerstone research in problem solving, foundation strategies such as heuristics, insight, and trial and error were developed. The implications of problem solving research manifest in the present day strategies of generate and test, means-ends, analogical reasoning, brainstorming, discovery learning, and the incorporation of those strategies into problem-based learning. Knowledge acquisition, expert interaction, and how a problem is defined are the three mechanical concerns for the usability of problem solving strategies. Problem based learning is an educational approach that can incorporate present day problem solving strategies. Problem based instruction affords educators an opportunity to provide students with a guided experience to solve ill-structured problems. Due to problem based learning being context specific, having no right or wrong solution, and based on knowledge and skills acquisition, problem-based learning allows for the implementation of diverse domains and for development of critical thinking skills. Thus, problem solving can be synthesized in the classroom through the use of problem-based learning and incorporation of problem solving strategies based on the learning context.

Key words: problem solving, problem based learning, assessment, strategies, theory, approaches

#108. Learner-Centered Approach: Enhancing Student Learning through Assessment

Thomas Broyles and Jolene Hamm
Virginia Tech

Learner-centered approach (LCA) although not a theory gathers techniques from other theoretical categories such as cognition, metacognition, and motivation. Critics argue that LCA builds on other theories, there is no provision for evaluative assessment, and assessment using this pedagogy is subjective. The purpose of this study was to describe learner-centered approach, discuss the theoretical basis, and discuss current research in the area of

assessment. From this exhaustive literature search, findings conclude that learner-centered pedagogy focuses on teacher instructional styles and incorporates the students' insight into cognition. Furthermore, this approach values student perceptions and understand that students have individual differences including coming from various backgrounds which includes learning. In LCA, assessment is meant to enhance student learning and provide feedback. Two common methods are self-assessment and peer assessment both assist the learner in development of analytical and critical skills. The implications show that when teachers effectively use this approach they treat the student as a cooperative partner in the learning process. Additionally, there must be close examination of the needs of the learner based on learning style and the need for assessment of both the learner and the learning. From this, educators develop learning experiences more, allow for student innovations, create learning climates, examine feedback with a critical view, and make changes accordingly. In summary, a key factor in learner-centered pedagogy is that both the instructor and pupil learn from tasks and assessment used in learning and engagement, and assessment changes from an evaluation to an additional learning measure.

Key words: learner-centered, assessment, pedagogy

#109. Preparing Global Ready Leaders in Agricultural and Life Sciences

Charlotte Emerson and Kirby Barrick
University of Florida

This grant was designed to help CALS students further develop leadership skills. During the spring 2009, thirty exceptional academic students will be selected after applying for CALS LI (College of Agricultural and Life Sciences Leadership Institute) through: an initial nomination ballot, submission of a resume, two letters of recommendation, and a personal interview. Beginning in fall 2009, these students will have an opportunity to prepare to become top leaders in their professional field or industry of study, through this new leadership program, CALS LI. During the 17-month program, CALS LI will allow students to analyze their personalities and leadership styles. With close guidance from a personal mentor, group and workshop experiences, leadership modules, a 50 hour practicum, and non-credit classes, students will move beyond the academic study of leadership development, into a real life application of leadership theories. After completing all program requirements students will receive a certificate of completion and further their global learning experience by attending a Capstone/Travel trip to Central America. CALS LI will begin its first cohort fall

2009. The program will be administered by H. Charlotte Emerson, program director, Dean R. Kirby Barrick, co-director, and Terrie Robinson, program coordinator.

Key word: student development

#112. The University of Georgia Agrosecurity Certificate Program: Current Events Activated at the Undergraduate Level

Nicholas Hill, Sarah Workman, and
Ronnie Silcox
University of Georgia

Agriculture and food account for more than 12%of the US gross domestic product and 16% of U.S. employment. As a result, agriculture is one of the critical infrastructures of the nation and Homeland Security Presidential Directive (HSPD-9) requires protection of this sector. The potential economic impact of malicious use of biological pathogens in the agricultural sector suggests an increasing likeliness of their use. In 2008, the University of Georgia received funding through a USDA-CRSEES Higher Education Challenge Grant to develop a curriculum designed to provide students with: 1) a broad overview of U.S. agriculture and food including the plant, animal and food industries; 2) a basic understanding of emergency management, resource policy and homeland security programs related to agriculture and the food industry; 3) an understanding of terrorism and terrorist organizations, specifically as they relate to agrosecurity; and 4) global issues related to agrosecurity. Three courses are required to complete the Certificate: Terror in the Food Supply, Agricultural Incident Response, and a capstone Agrosecurity Seminar. Internships with Homeland Security (State or Federal) are encouraged to help develop communication and problem-solving skills. Student interns were placed in 2008 and evaluated by employers for feedback. Although the Certificate program is in its infancy, state (emergency management and response) and federal agencies (Homeland Security, USDA-Animal and Plant Health Inspection Service) are requesting assistance in filling vacant positions. There are over 1,200 vacancies in Homeland Security and APHIS retirements represent 50% of their work force over the next five years.

Key words: agrosecurity, certificate program, homeland security

#114. Instructional Delivery: Implications for Teaching Generation Y in the Food, Nutrition and Agricultural Sciences

Norma Dawkins, Ralphenia Pace, and
Zhiliang Huang
Tuskegee University

Learning is a complex process involving the

development of conceptual understanding therefore; teaching Generation Y students presents it challenges. This generation lives, and thrives in a technological world. Consequently, to capture their attention and focus, the learning environment must respond with modern high speed technologies that will improve student learning outcomes. Therefore, engaging students in problem-based activities using these technologies is a practical approach for course fundamentals. The aim of the current presentation is to highlight students' research utilizing modern high speed technologies. Undergraduate and high school students, during their summer internship were involved in several research projects designed to provide exposure in food, nutrition, and agricultural sciences. Selected projects were: 1) Methods for measuring dietary and body fat ; 2) Chemical differences among dietary fat; 3) Dietary intake of African- Americans and implication for cardiovascular disease; and 4) Texture Analysis of Selected Foods: Implication for the Food Industry. These projects exposed students to computer-based software for dietary analysis, gas chromatography, Bio-impedance, Smart-Trac System [This system uses a combination of microwave and nuclear magnetic resonance (NMR) technology to provide test precision to 0.01% without the use of hazardous solvent in minutes], and texture technology. In summary, the projects addressed the needs of generation Y students by introducing innovative modern high speed instrumentation approaches to students for solving research questions related to food and nutrition. Furthermore, the projects exposed students to scientific and technical fundamental aspects of food, nutrition, and agricultural sciences, in addition to serving as a recruitment tool.

Key words: technology, generation Y students, research, instrumentation

#115. Workshops Increase Awareness of Agricultural Bioinformatics at Virginia State University

Glenn Harris
Virginia State University

Recent advances in technology and research have resulted in enormous amounts of genetic information being generated by molecular biologists and genomics researchers. This has resulted in a growing demand for bioinformaticians, making them one of the fastest growing sectors in agricultural biotechnology. Here we describe recent progress in enhancing bioinformatics training at Virginia State University, specifically toward the three objectives of this project 1) to increase student awareness of the field of agricultural bioinformatics, 2) to establish an online Bioinformatics Resource Center, and 3) to ensure that educators from VSU, other HBCUs and local high schools have the bioinformatics resources and training they need to prepare students for careers in modern agricultural sciences. A technology-enhanced learning approach was applied to bioinformatics-themed workshops for students and educators. Brief before-and-after assessments indicated the effectiveness of the workshops in increasing awareness of and stimulating interest in the bioinformatics field. The work outlined here will allow Virginia State University to be better prepared to recruit and train students to meet the changing demands of the agriculture workforce.

Key words: bioinformatics, workshops, biotechnology

#132. Big City, Big Country Road Show: An Innovative Approach to Recruiting Inner-city Youth into the Agricultural Sciences

Cindy Akers
Texas Tech University

Cash Berry
Howard College

Gary Wingenbach
Texas A&M University

The Big City, Big Country Road Show is an innovative college recruitment program targeting underrepresented, inner-city high school students with no agricultural background. The program focuses on agricultural communications topics with activities in crisis communications, digital photography, news writing, digital video production, and Web design to broaden students' knowledge of possible agricultural careers, thereby increasing their interests in pursuing post-secondary degrees in the agricultural sciences. The purpose of this research was to measure the differences in students' knowledge gains in agricultural communications topics after two instructional treatments (self-directed versus guided). A purposive sample (n = 25) was derived from three national workshops in summer 2008. Inner-city high school students in El Paso, Atlanta, and Chicago spent one week studying five online agricultural communications modules, followed by a self-administered 12-question quiz. The following week, project directors presented guided instruction in the same five topics, followed by a 12-question knowledge quiz, with six questions repeated from the self-directed quiz. Students made significant knowledge gains in their understanding of digital photography and news writing concepts following specific guided instruction in those topics. Students also made significant gains in their understanding of Web design concepts when measured on all 12 quiz questions. The Big City, Big Country recruitment project is helping change underrepresented, inner-city high school students' knowledge and perceptions of agricultural careers.

Continued emphasis on active promotion of agricultural science careers to underrepresented urban youth is needed to ensure increased diversity of the agricultural workforce, especially as it pertains to USDA career tracks.

Key words: urban youth, recruitment, agricultural knowledge, agricultural communications

#134
Selected Urban High School Students' Perceptions about Agricultural Careers and General Agricultural Knowledge

Gary Wingenbach, Elisabeth McCann, Belay Begashaw, Lawrence Wolfskill, Lauren Rouse, James Lindner, and Tracy Rutherford
Texas A&M University

Lacee Fraze
American Museum of Agriculture

Would high school students from inner-city metropolitan areas with no agricultural background change their perceptions about agricultural careers and/or their general agricultural knowledge following a two-week agricultural crisis communications workshop? The workshop focused on agricultural communications topics such as crisis communication, digital photography, news writing, digital video, and website design to help students change their perspectives about career opportunities in the agricultural industry. The purpose of this research was to measure the influence of workshop participation on students' perceptions of careers attainable with an agricultural degree and their general agricultural knowledge levels (self-reported and tested). A purposive sample (n = 25) was derived from three national workshops (El Paso, Atlanta, and Chicago) in summer 2008. Significantly more students perceived careers such as Web designer, photographer, chemist, loan officer, engineer, and landscaper as viable careers after participating in the workshop. Information technology careers addressed in the workshop produced statistically significant differences between students' pre- and post-test data, highlighting information technology as a critical factor for career consideration. Significant differences in perceived knowledge indicated that student's perceived they knew more about agriculture as a result of the workshop. The number of students who perceived they had "more knowledge" than their peers increased by 43.5% from pre- to post-workshop settings. However, comparison of their pre- and post-workshop tested agricultural knowledge levels revealed no significant differences. Future research should include a variety of assessment methods, both before and after workshop participation.

Key words: urban youth, recruitment, agricultural careers, information technology

#137. Educational Collaborative on Sustainable Environmental and Agricultural Management
Steven Safferman and Luke Reese
Michigan State University

The Educational Collaborative on Sustainable Environmental and Agricultural Management (ECOSEAM) has the objective of educating students on high priority agricultural and rural environmental issues not comprehensively taught in their MS degree and undergraduate design courses. Programming for professionals seeking continuing education is also being developed. Designers and operators are increasingly being called to work at the rural/suburban interface yet few formal education opportunities exist. Specific class topics include agricultural air emissions, animal manure management and engineering, decentralized wastewater engineering and cluster systems, and suburban/rural watershed interface modeling. Classes are facilitated self-study and cut across multiple disciplines and institutions and include hands-on activities with mentoring from practicing professionals. Extensive use of technology enables participation among universities and distribution of curriculum materials to qualified instructors throughout the country. Initial ECOSEAM partners are Michigan State University, The Ohio State University, Purdue University, Central State University, and Stephens Consulting, LCC. The collaboration allows for pooled resources and material development by practicing professionals and researchers in the field. Multiple stakeholders will evaluate the resource and impact will by surveyed based on changed practices resulting from course completion. Lessons learned include the importance of developing content in parallel with the first time the course is offered and the need for detailed logistical planning due to the complexity associated with multi-institutional programs. Both led to the adopted ECOSEAM model; curriculum content distributed, without cost, to qualified instructors to use in new self-study facilitated courses or for incorporation in existing courses.

Key words: agricultural and environmental engineering college education, multi-institutional collaboration, facilitated self-study, environmental rural/suburban interface

#138. Assessment of Short-Term Study-Abroad Experiences
Thomas Kuzmic
Oklahoma State University

Qualitative assessment of experiential learning in a 16-day study-trip to Honduras over a ten year period demonstrates marked growth by student participants in cultural awareness, sensitivity, and ideology. Journals maintained by participants throughout their experiences and written self-assessments submitted afterwards, gauging the extent to which students perceived that they fulfilled course objectives delineated by the instructor, as well as their own personal

objectives crafted prior to the study-trip, were subject to content analysis. Students consistently cited a broadened sense of a more realistic and altruistic global view as they came to recognize and understand dramatic differences in life and living in a developing nation, in stark contrast to their abundant and comfort-oriented lifestyle in the USA. Further, students gained first-hand comprehension of the necessity and nuances of living in close attachment to the land and its resources to fulfill basic needs, and gained an appreciation of the tenuous balance between survival and prosperity for people living in poverty in tropical ecosystems where agricultural and natural resource opportunities are limited by low technology and a web of social, economic, and political constraints. Components of the experience that contribute to its success include eight weeks of pre-trip classes that lay a theoretical foundation; a role-playing exercise in sustainable community development; hands-on, service-learning activities with Honduran farmers, workers, NGO leaders, and land managers in rural villages, on hillside farms, and in homes, schools and workplaces, during the trip; and opportunities for ecotourism pursuits, adventure, and cultural interaction throughout the experience.

Key words: assessment, study-abroad, cultural ideology

#140. Certificate Program in Organic Agriculture at the University of Georgia

Anish Malladi
University of Georgia

Organic agriculture continues to be a rapidly growing sector. A certificate program in organic agriculture was initiated in 2006 at University of Georgia (UGA) to address the growing student interest in this field, and to train students as qualified individuals with knowledge and experience in organic production. As part of this program, an interdisciplinary team was assembled and four new courses were developed to provide an understanding of, and practical training in various aspects of organic production such as fertility, pest and disease management, economics of organic production, ethics of sustainability and understanding of organic agricultural systems. An undergraduate research project or an internship at a local organic farm is mandatory to complete the certificate program. A two-acre plot at the Horticulture farm (UGA) was developed into a certified organic farm and is being extensively utilized for demonstration of organic production, for hands-on organic farm experience, and for undergraduate research projects. Additionally, a community-supported-agriculture program was initiated in the fall of 2008 to enable utilization of the produce grown at the organic farm. The program has successfully graduated two students and currently has 27 students enrolled in it. Graduating students presented their research project or internship experience at the organic agriculture seminar. The program has greatly increased general awareness of opportunities and challenges in organic agriculture among students. It continues to attract students from varied disciplines and is emerging as a truly inter-disciplinary program at UGA.

Key words: agriculture, organic certificate

#144. An Internal Evaluation of Agricultural Extension and Education Department at Islamic Azad University in Ilam Province in Iran

Kiumars Zarafshani
Razi University, Iran

Alireza Poursaeed
Izlamic Azad Univertsity, Ilam, Iran

Institutions of higher education in agriculture are required by the Ministry of Science, Research and Technology in Iran to undertake self-evaluation in order to enhance the quality of their programs. To respond to this self-reflective process, Islamic Azad University in Ilam province designed an internal evaluation through administrative data, the questioning of students and graduates, and the holding of moderated interviews with lecturers and students. A random sample of 125 undergraduate and 12 graduate students along with a census of lecturers (N = 5) participated in this qualitative study. An open ended questionnaire was used to collect data. Data were analyzed using qualitative techniques such as content analysis. Results indicated that students were somewhat satisfied with their programs. However, they were not satisfied with their faculties' competencies in some agricultural skills and abilities. Although lecturers in Department of Agricultural Extension and Education were satisfied with their job compensations, they rated department resources somewhat weak in providing professional development programs. The result of this study has implications for university policy-makers. If the Department of Agricultural Extension and education in Ilam University is to create employable students, an annual internal evaluation process is a key to such a challenge.

Key words: internal evaluation, content analysis, agriculture, self-evaluation, content analysis

#145. Deployment of Basic Meat Science Curriculum Topics and Standards Instrument

John Duke and Thomas Dobbins
Clemson University

This was a Delphi study and the purpose of this study was to develop basic meat science topics and standards for secondary agricultural education. The

Expert panel was made up of meat science faculty and the Delphi panel was composed of members from academia, industry and top ten meat FFA Career Development Event Coaches. Two Delphi rounds were used to develop the survey instrument. The modified Delphi started with an outline of basic meat science topics developed by expert panel from 16 university basic meat science syllabi. The Delphi panel added or deleted topics, topics were consolidated into an outline, and a Likert-type scale was added. Topics with a mean < 2.5 were removed. Standards were added to each topic, standards were combined, and a Likert-type scale added. Initially 136 standards were reduced to 100 by removing duplicate, similar, and those not clear. Agricultural education teachers from six southern states were asked to validate each standard using a Web-based survey using 4 = high, 3 = moderate, 2 = low, and 1 = not a priority.

The study found 17 topics (38%) having moderate to high priority with a mean > 3.0, eight (32%) topics having low priority with a mean of < 3.0 but > 2.0, and none of the topics were rated not a priority. All topics had a SD ≤ 1.0 confirming a high level of agreement among agricultural education teachers, giving a basis for developing a basic meat science curriculum for secondary agricultural education.

Key words: Delphi, curriculum, education, standards, topics

#149. Relationships of Learning Styles, Grades, and Educational Preferences
Mary Lehman
Longwood University

The classic literature suggests that students with different learning styles should have distinct preferences for different educational activities. However, few studies have provided data for preferences in contemporary college students. During a three-year study in an introductory biology course, Gregorc learning styles were compared to self-reported educational preferences on a 19-question survey. This study also further investigated trends from a previous study that suggested a relationship between grades and satisfaction with a cooperative learning project. Dominant learning style categories and learning style numerical scores were not correlated to most self-reported educational preferences on the survey. The Concrete Sequential (CS) learning style was correlated to preferences for clearly organized, structured lectures and the use of workbooks or lab manuals. The Abstract Sequential learning style was correlated to a preference for problem-solving activities. Course grades were significantly correlated to a survey question about group projects, with a trend for students with higher grades to dislike group projects. High achievers also reported a significantly greater dislike of computer-assisted studying modules. Abstract Random scores were significantly negatively correlated to grade in the course. This finding may be course and instructor specific. Only the trends for the CS learning style are in agreement with previous literature. The link between grades and dissatisfaction with group projects is in agreement with results of a previous study from this course.

Key words: learning styles, group projects, grades

#151. Developing Future Agriculture Leaders through Intensive On-Campus Experiences
Joey Mehlhorn, Scott Parrott, Timothy Burcham, and Philip Smartt
University of Tennessee at Martin

Today high school students are faced with many career opportunities outside of the agriculture field. It has become increasingly more important for agricultural programs to aggressively promote agriculture as a career choice among traditional agricultural students (micropolitan) as well as the growing field of non-traditional students (metropolitan). Students can be influenced to pursue agriculture as a profession, if they have a positive understanding of the agricultural industry and what it has to offer students. In 2004, the University of Tennessee at Martin initiated an academic enrichment program for junior and senior students in Tennessee high schools known as the Tennessee Governor's School for the Agricultural Sciences (TGSAS). Student participants spend five weeks on campus enrolled in classes and completing applied research projects. The program has mentored and trained 180 students in the past five years. It is important to assess the effectiveness of this program to determine if students are responding positively to the experience. It is hypothesized that students who are engaged through the program are more likely to pursue a career or training in agriculture. Survey data from all previous student participants (n=180) has been analyzed to determine the perceptions either positive or negative in relation to pursuing a career in agriculture. Additional post program data has also been collected on students regarding actual career choices (ie. college major, employment) since completing TGSAS. Data indicate that students perceived the TGSAS educational experience positively and the program did influence career decisions among students.

Key words: career development, experiential learning, student perceptions

#153. Action Research Methods to Assess Service Learning: The Uganda Primary School Garden Case Study

Gail Nonnecke, Kevin Saunders, and Steve A. Freeman
Iowa State University

Intentional assessment of student learning provides important support for program improvement, strategies for enhancing student learning, and evidence of learning outcome achievement. Qualitative methodology used to assess student learning by U.S. food and agriculture undergraduates in a global service-learning program will be presented. The service-learning program is conducted in Uganda and comprised of Iowa State University and Makerere University students and faculty in which the bi-national team develops food and agricultural educational programs and projects and implements them in a primary school setting. Effective qualitative methods will be outlined including prolonged engagement (building trust with participants, understanding the culture), triangulation (using multiple data sources and methods), peer review (data analysis and debriefing with peers external to the program), and thick descriptions (direct quotes of participants to support deep understanding). Analysis of student reflection journals, pre- and post-experience focus groups, interviews of international partners, and student poster presentations demonstrate impact on students' understanding of social change, knowledge of culture, ability to connect sustainable agricultural practices with societal issues, application of service learning experiences to address global problems, and development of future career goals. The methodologies used to assess student learning in this global program can be easily adapted to other agricultural classrooms to more deeply assess student learning.

Key words: service-learning, scholarship of teaching and learning

#158. Describing Teaching Techniques for Assessing Student Cognitive Retention

M. Whittington and Whitney Beck
The Ohio State University

Researchers recommend that teachers create learning situations that teach students at higher levels of cognition, and further research be conducted on the effect of teaching methods to student attitude and long-term and short-term content knowledge retention. The objectives guiding this descriptive case study were: (1) to describe the amount of time the teacher spent using specific group teaching techniques and specific individualized teaching techniques and (2) to describe student immediate, short-term, and long-term cognitive retention. This study included one teacher teaching a three-week unit of instruction on Animal Science to a freshman Ag Science I class. The time spent using each of the teaching techniques was recorded, and cognitively weighted unit exams were used to measure student cognitive retention. Students took the unit exams immediately following the unit (immediate), 42 days following the unit (short-term), and 182 days following the unit of instruction (long-term). The teaching techniques used, in order from most frequently used to least frequently used, were student notebooks, lecture, discussion, information sheets, cooperative learning, supervised study, and demonstration. The long term cognitively weighted test scores decreased by 0.83 percent from the immediate cognitively weighted test scores. The minimum test score difference from immediate to 182 days was a loss of 13%, and the maximum test score difference was a gain of 17%. Further research recommendations include designing a study observing multiple teachers at multiple interval data collection points.

Key words: teaching techniques, assessment, cognitive retention

#167. Developing Responsible Learners: Expectations and Accountability are Critical

Jan Wiersema, Cynthia Haynes, Steven Jungst, Janette Thompson, Barb Licklider, and Suzanne Hendrich
Iowa State University

In many college courses students succeed by memorizing facts and principles, but solving ill-defined problems of the future requires critical thinking and continuous learning. As developers and co-facilitators of The Academy for Leadership and Learning, our ultimate expectation for students is that they become responsible learners—students who take charge of their own thinking, actions, and ultimately, their own learning. Every learning opportunity we plan has that outcome in mind. Although students identified many factors that contributed to their growth as learners, our session focuses on three: confronting their current paradigms of learning, experiencing learning-centered activities that either confirm or refute those paradigms, and being held accountable for the thinking necessary to resolve any resultant cognitive dissonance and to apply new learnings to life. Participants in our session will have the opportunity to confront their own beliefs about learning, participate in a learning-centered activity, and discuss the model of a responsible learner we use with students. For the rest of their professional lives students will be required to make choices about their thinking and their actions. Those choices will have consequences, both intended and unintended. In other words, as professionals, students will be held accountable for their thinking and for what they do. Implications for educators focus on holding students accountable for deep learning even when students do

not like it. Students know it makes a difference. When faculty persist, so will students, and as they hold themselves accountable for learning they can become the citizens and professionals the world needs.

Key words: responsible learners, expectations, accountability, metacognition, cognitive dissonance

#170. Assessing an Animal Sciences/Anthropology "Role of Animals in Societies of the World" Interdisciplinary Honors Course

Mark Russell
Purdue University

Kate Kanne
Northwestern University

Stephen Damron
Oklahoma State University

This course is an introduction of the importance of animals in various cultures and societies of the world. We will share the syllabus, assessment methods, and effectiveness of this interdisciplinary course. The disciplines related to anthropology, agriculture, and biology are integrated as we explore the societal tensions and current issues surrounding animal-human interactions. Factors which influence the role of animals in society are physical and biological adaptations of animals and the role of traditions, culture, religions, geography, climatic, and socio-economics. Films, written articles, and mostly guest presenters from a wide variety of disciplines and media are used to deliver content in this course. Faculty in animal sciences and anthropology as well as graduate students from different cultures and countries share their research and experiences. Assessments include quizzes, exams, study question guides, reflective narrative reports, and two term papers with peer and third party reviews. Students are evaluated also on the presentations of the Use and Society and the Current Issue papers. Student engagement is an integral part of the assessment. We have found that exposure to unknown topics and extreme uses of animals helps to draw the students out of their comfort zone and realize that they can improve their writing and their breadth of other cultures through their interest in animals. This course has opened our minds to collaborating beyond our perceived boarders and identified assessment methods that challenge the students and improve their learning.

Key words: interdisciplinary, writing assessments, anthropology, animal sciences

#174. Strategies for Linking Course Objectives and Class Activities to Learning Outcomes

John Ewing, Naveen Chickthimmah, and Rama Radhakrishna
Penn State University

Teachers and educators are challenged to develop learning outcomes for courses they teach. This challenge has increased in recent years because of lack of measurable learning outcomes documented in courses taught. The overall purpose of this presentation is to share strategies for linking course objectives and class activities to learning outcomes using examples from three different courses. The courses were taught by three different instructors in two different departments. The courses varied in terms of enrollment, content, and instructor experience. The following strategies were adopted to link objectives, activities and learning outcomes: 1) decide on what competencies/skills that enrollees will acquire as a result of taking the course, 2) determine instructional activities that help acquire the competencies/skills; think of Bloom's taxonomy as a framework to decide on activities, 3) develop measures (tests, critiques, presentations, etc.) to assess outcomes and decide on indicators that provide evidence for documenting outcomes, 4) collect outcome data to determine whether or not students attained needed skills/competencies, 5) share with students up front how these strategies work and expectations, 6) review results by activity to determine what worked and what did not work, 7) use the results as a "lessons learned" to improve course offerings in future. Finally, reflect on the experiences to further improve the courses. The approach we have used has helped us understand how this linkage works. In addition, it has helped address assessment questions in relation to strategic planning issues at the departmental and college levels.

Key words: objectives, learning outcomes

#182. Describing Student Cognitive Retention in an Animal Science Unit

Jeremy Falk, Whitney Beck, and M. Whittington
The Ohio State University

Teaching a unit of instruction that results in students gaining very little knowledge is of great concern to educational researchers. It is hard to justify spending valuable class-time on content that may soon be forgotten. The objective guiding this case study was to describe student immediate, short-term, and long-term cognitive retention of ninth grade students enrolled in an Ag Science I class. This is one objective of an ongoing larger line of inquiry where the researchers studied one teacher who taught a three-week unit of instruction on Animal Science to a freshman Ag Science I class. The students completed the final unit exam immediately after the unit (immediate retention), 42 days after the unit (short-term retention), and

182 days after the unit of instruction (long-term retention) was taught. A cognitive weight was applied to the exams to provide differentiation of questions that engaged students at higher cognitive levels. Each student's cognitive retention score was calculated by multiplying the student retention of content score (final exam test score) by the cognitive weighting of the exam. The long term cognitively weighted test scores decreased by 0.83 percent from the immediate cognitively weighted test scores. The minimum test score difference was a loss of 13% and the maximum test score difference was a gain of 17%.

Key words: cognition, cognitive retention

#188. USDA Scholars Program – Innovations in Undergraduate Research

Deborah J. Good, Christina M. McIntyre, and Mary A. Marchant
Virginia Polytechnic Institute and State University

Virginia Tech's 2012 Strategic Plan places high priority on increasing undergraduate research. The USDA Scholars Program coordinates Human Nutrition Foods and Exercise (HNFE) undergraduates in a research experience that includes working in laboratories with faculty, weekly group meetings, and workshops on grant writing, scientific presentations and publications. Seven USDA Scholars, selected from a total of 27 applicants, took part in the summer 2008 program, the first of three years funded by a USDA Higher Education Challenge Grant, with matching money from HNFE, the College of Agriculture and Life Sciences, the Fralin Life Sciences Institute and the Provost's Office. An annual multi-institutional symposium 'The USDA Scholars Symposium on Obesity, Nutrition and Health' was initiated on August 8, 2008, with participants from the University of Pennsylvania, Penn State University, the University of Michigan, Davidson College and Virginia Tech, who hosted the symposium. Undergraduate research was featured in the symposium. Elected by scholar peers, a USDA Scholar presented the results of his summer research to all participants. An afternoon poster session featured all undergraduate participants showcasing their research projects. Concurrent afternoon sessions on research ethics, mentoring, and a tour of research labs concluded the symposium. The USDA Scholars receive credit during the summer for two required courses in their HNFE program. This frees up space in the subsequent academic years for the scholars to incorporate enriching experiences, continued research, and elective coursework. The 2008 USDA Scholars Program increased HNFE undergraduate research participation by 69% over the prior two years. Upon completion of the program, six of the seven students have continued working in research laboratories for the 2008/09 academic year. The 2008 USDA Scholars mentored their peer group of HNFE undergraduates in freshmen to senior level courses, impacting over two hundred students in the fall 2008 semester. Ten students will be participating in the 2009 USDA

Summer Scholars Program, culminating with the 2nd annual 'USDA Scholars Symposium on Obesity, Nutrition and Health' symposium, hosted by the University of Pennsylvania.

Key words: undergraduate research, peer mentoring, departmental curriculum

#191. Achieving Institutional Sustainability through Student-Coordinated Efforts

Mark Uchanski, Lori Kae Schwab, and Constance Falk
New Mexico State University

Student efforts coordinated through university organizations can have a significant impact on institutional policy. Additionally, involvement in student organizations can augment skills acquired in the classroom. Members of the Organization of Aggie Students Inspiring Sustainability (OASIS) at NMSU were responsible for all aspects of planning and hosting a World Café (WC) networking event for the University's designated 2009 "Year of Sustainability." The WC technique brings together diverse groups to increase the quantity and quality of conversation about important issues, including institutional sustainability. The daylong event concluded with a survey (n=51), and more than half of the respondents identified the opportunity to network with a diverse group as their "favorite" aspect of the day. However, increasing diversity of the participants was most cited for improving WCs in the future (16%). Ninety-six percent of participants surveyed felt the day was a good use of their time and would like to be invited to related future events. Twenty percent of the participants described the day as "inspiring." Event attendees (n=95) included the NMSU president, faculty, staff, and administrators, local politicians, farmers, students (23%), K-12 teachers, community leaders and organizers, non-governmental organizations, and local business owners. Since the event, the University has made concrete steps toward achieving institutional sustainability, the majority with which the students have been involved. Based on these experiences, we outline the successes and roadblocks to student organization engagement in university-level action, and hope this process can serve as a model for similar efforts on campuses across the U.S.

Key words: World Café, student involvement, year of sustainability

#192. Teaching Computer Aided Design vs. Teaching Computer Aided Drafting

Michael Reinert
Iowa State University

Landscape design educators should consider a change in perspective concerning the use of computer software in the landscape design process. Traditionally, computer software was used only for drafting and only to represent two-dimensional design output. Today, several pieces of design software exist that can aid in the design process as well as the output process. While several pieces of drafting software were created for the landscape industry, all of these products are based on the AutoCAD model, an industry standard for many years. Design software is based on the SketchUp model and this model was used for the creation of Realtime Landscaping Architect, landscape specific design software. These new pieces of design software assist the designer with parts of the design process not available with drafting software including spatial analysis, collaborative design, and three-dimensional walkthroughs of the completed design. Drafting software remains an important part of the design process used for the creation of landscape construction documents and plans. Landscape design educators consider the use of landscape design software to potentially enhance the design process beyond simply representing design output.

Key words: landscape, design, software, drafting

#193. Academic Success of Majors and Non-Majors in Animal Science Courses

Kyle Stutts, Marcy Beverly, Alisha Bullion, Stanley Kelley, Matt McMillan, and Lesley Rakowitz
Sam Houston State University

The objective of this study was to compare the performance of animal science majors with that of non-majors in animal science courses. Data were collected on 928 students for two 16-week semesters in undergraduate animal science courses at Sam Houston State University. Data collected included attendance, gender, classification, and major field of study. A course grade prediction model was determined using these variables and correlation coefficients between these variables were calculated. Animal Science majors accounted for 56.6% of the sample which included Pre-veterinary Medicine and Wildlife Ecology majors. Non-majors accounted for 43.4% of the data set which included Agriculture, Agricultural Business, Agricultural Mechanization, Horticulture and Crop Sciences, and all other majors. Non-majors (9.1) had a higher (P<.01) average number of absences than animal science majors (8.3) in these animal science courses. In addition, a negative correlation existed between number of absences and final course grade, and between major field of study and final course grade. These correlations indicate that students with a higher number of absences or students that were non-majors typically obtained a lower final grade in the course. However, there was no difference (P>.05) in final average course grade between animal science majors (80.37) and non-majors (80.06). Even though non-majors had a higher number of absences than majors, and a negative correlation existed between number of absences and final course grade, these data indicate there was no difference in performance of majors and non-majors in animal science courses as measured by average final course grade.

Key words: academic success, major vs. non major success

#195. An Undergraduate Summer Research Internship and Mentorship Program in the Agricultural Sciences

Justin Moss
Oklahoma State University

The goal of this project was to create an undergraduate summer research internship and mentorship program in the agricultural sciences with collaboration between Sheridan College (SC), Little Big Horn College (LBHC), and the University of Wyoming (UW). The objective of this project is to increase high school student recruitment to the agricultural science programs at SC and LBHC. Students in Wyoming and Montana were recruited and hired by an advisory group of faculty from each institution and local agricultural industry representatives. Eleven graduating and three incoming high school seniors were hired in 2008. Four students identified themselves as Native American (three female, one male) and 10 students as Caucasian (six female, four male). Interns were teamed with a faculty mentor and were responsible for creating a research proposal based on their interest in agricultural science. Students implemented their research at UW, collected and analyzed data, then presented results during a summer internship research symposium held at Sheridan College. At the conclusion of the 2008 program, four students decided to attend SC and major in agricultural science; four students decided to attend LBHC and major in agricultural science; one student decided to attend UW and major in agricultural science; one student decided to attend UW and major in engineering; and one student decided to enter the military. Of the three high school seniors, one plans to major in agricultural science at SC while two plan to major in pre-medicine at UW. The project will be repeated in 2009.

Key words: internship, mentorship, undergraduate research, recruitment, agricultural sciences

#196. Is a Mentoring Program Worth the Investment?

Larae Watkins
University of Central Missouri

Donald Scott
University of Central Missouri - MCCE

Mentoring programs are often key mechanisms for bringing new professionals up to speed. Anecdotal data provide insight on mentoring programs potential effectiveness, but assessing long term impacts on instructor retention is less studied. The University of Central Missouri's Center for Career Education, and the Missouri Department of Elementary and Secondary Education invested in a two-year, state-level mentoring program for novice career educators in agriculture, business, family and consumer sciences, and trade/industrial education. Through a unique partnership, this program provides more in-depth training in content-specific instructional practices, student discipline, and classroom management. The intended program impact is improving instructional effectiveness while providing support systems for novice instructors; the added bonus being improved job satisfaction and retention. Retention is the focus of the first phase of this longitudinal study, which included all participants in the 2006 and 2007 mentoring cohorts (n = 228) and a comparison to non-participants (n=276). Additionally, interviews were conducted with 20 program participants to investigate perceptions of connections between mentoring program experiences and their decisions to stay in teaching. Program completion data was obtained from the program director, and current employment status was obtained from the state data reporting system. Findings include quantitative results showing a 33% higher retention into a third year of teaching of mentoring program participants than non-participants, and qualitative results showing a perceived connection between their staying in teaching and their mentoring program experiences. Data collection is ongoing, with the addition of the 2008 cohort and continued tracking of the initial cohorts.

Key words: assessment, mentoring, teacher education

#197. Assessing Student Global Competency: Building a Global Ready Graduate

Sandy Mehlhorn
University of Memphis

Joey Mehlhorn
University of Tennessee at Martin

Our economic prosperity is linked to the broader global economy. As a result, it is important for students to actively engage the international community and develop an understanding of the international marketplace. Today, less than 1.2% of agriculture students in the U.S. participate in study abroad programs. Many students have little knowledge of the important role that international markets play in the U.S. agricultural economy. The importance of globalization will impact the future employment patterns for agriculture graduates. Students who lack global competency will be at a disadvantage in the agriculture job market. Three student populations were surveyed to assess their global competency level through an extensive survey instrument. Two student groups were selected from courses with direct international content and one control group was selected from a course without international content. Data was collected and analyzed for the following areas: student demographics, willingness to pay to develop international competency and cultural perceptions. The students who were enrolled in courses with international content were more likely to view working in another country favorably. They also reported a higher average willingness to pay for international competency through dollars and increased course work. Results also showed an overall difference between student cultural perceptions based on whether they resided in a metropolitan area versus a micropolitan area. Efforts to increase global competency among micropolitan students is needed. In addition to the initial survey data, successful study abroad and travel study programs will be analyzed for student success, ease of entry, and budget requirements.

Key words: global competency, intercultural perceptions, travel study

#201. Applying the Lesson Study Method in an Advanced Teaching Methods Graduate Course: An Innovative Teaching Approach for Linking Application to Theory

Jeremy Robinson
Oklahoma State University

The purpose of this project was to allow graduate students the opportunity to experience the constructivism theory as it related to teaching in a formal or non-formal setting by use of the lesson study method. Students were grouped into pairs or trios to accomplish this task. Depending on interests and the areas of specialization comprising their team makeup, students identified a common "theme" in which they would research, construct a lesson plan for, and eventually teach. Once the theme was identified, students selected an age or class of students to teach and contacted the respective lead-instructor to set up a time to visit about their lesson and secure two teaching dates. At the end of each weekly class session, students worked to incorporate theory and methodology in which they had previously been exposed. Students were required to design their lesson plans by integrating at least two different subject areas and four

different teaching methods. Students taught the lesson twice. Modifications to the lesson plan were made after the first teaching experience. The following lesson "themes" and students were selected: dairy science – 9th grade agricultural education students; soil science – 8th grade agricultural education students; professional communication tactics – undergraduate agricultural communication students; international agriculture – College of Agriculture graduate students; and identifying and using canola – high school agricultural education students. Additionally, the following subject areas were integrated: math, science, English, history, geography, and health. Lastly, students employed the following teaching methods in their lessons: modified lecture/question-answer-discussion, demonstration/simulation, brainstorming, case study, and role play.

Key words: lesson study method, advanced teaching methods course, innovative teaching approach

#205. A Relationship between Assessment Time and Student Performance?

Kevin Williams
Oklahoma Panhandle State University

Gary Gregory and John Rayfield
North Carolina State University

The purpose of this preliminary evaluation was to determine if a relationship existed between student performance on three separate course exams and the amount of time spent in taking each exam. This study was conducted during a one semester offering of a three hour livestock and poultry industry class designed for students seeking a two-year Associate of Science degree at a land grant university. The primary hypothesis was: students who required less time to complete course exams would perform higher on those exams. Overall 83 students participated in this research. Each of the three exams administered was identical in number of questions asked, format of questions, and the arrangement of those questions. The content covered in each exam tied directly to course objectives and was unique to each exam. Time in number of minutes was recorded for each student completing each of the three exams and was used as a grouping variable. Results collected from each of the three exams did reveal students in group one, who utilized the least amount of time in exam completion, did perform markedly higher than all other groups. With exams one and two, group two also performed higher than the remaining group who required more time in testing. Conclusions from this study were drawn that higher performing students were more familiar with course content and could more quickly grasp what specific ques-

tions were asking. Recommendations were made for continued research in this area with additional courses and an increased number of semesters for data collection.

Key words: assessment, exams, time, student performance

#223. Integrating Environmental Education into the Curriculum

James Tidwell, Kazi Javed, Tamara Sluss, and Charles Bennett
Kentucky State University

We have undertaken a comprehensive plan to integrate environmental education into the University curriculum by incorporating environmental topics through faculty mini-grants as incentives. We have also formed a collaborative partnership with area schools to assist them in implementing an environmental education program. The primary goal of the faculty mini-grants program is to improve environmental literacy for all KSU graduates, especially those who plan to become teachers. These mini-grants are part of our efforts to institutionalize environmental education at KSU; they will be used to create or support coursework that provides in-depth, cross-disciplinary instruction that is ecologically sound and promotes responsible civic actions toward the environment. A collaborative partnership was also formed in 2007 with area schools to assist them in implementing an environmental education program. Forty-two teachers participated in the first week-long summer workshop. We focused on stream ecology principles, human impacts, field methods, macroinvertebrate identification, data analysis, and Shannon Diversity. Fifty-two teachers attended the 2008 workshop. The primary focus of the second year workshop was to investigate habitat fragmentation and invasive species using GPS and GIS technology. Participants learned the use of hand-held GIS devises to map invasive species, measure remnant forest patches, and plan corridors for habitat connectivity. We have established an Environmental Center on a 300 acre nature preserve that serves as an outdoor classroom for these activities. In order to ensure adoption into classroom curricula, we are conducting follow-up workshops and providing the necessary equipment and support to the participating schools.

Key words: environmental education, stream ecology, habitat fragmentation

#224. Technology Training: An Exploration of the Interest of Agriculture Faculty

Misty Lambert, Rebecca Lawver, and Robert Terry, Jr.
University of Missouri

This study sought to assess the use of technology by applied social scientists (N = 46) in a college of agriculture and determine their interest in faculty

inservice related to that topic. The faculty members were asked to evaluate 36 tasks in which instructional technology is used, indicating their level of competence in performing that task as well as their interest in learning more about performing the task. Faculty were most competent in "communicating to individuals or groups with electronically written messages (e.g. email)," "conducting searches of materials available on the internet," "word processing of documents," "searching for journal articles," and "creating presentation graphics (e.g., Power Point®)." Faculty were most interested in learning about "creating presentation graphics (e.g., Power Point®)," "searching for journal articles," "creating websites and web pages," "creating information graphics," and "providing students online access to grades and course materials (e.g., Blackboard)." Cohen's D was calculated to determine effect size differences among means and to identify those areas that should be the primary focus for faculty development and inservice programs. Two areas of emphasis identified as having a large effect size were "producing custom audio/video recording," and "creating websites and web pages."

#230. Instructional Models and Learning Styles within the College of Agricultural Sciences at Colorado State University: Survey Results

Dara Booher, Dennis Lamm, Karen Kaminski, Kris McKay, and Ken Barbarick
Colorado State University

Improving the teaching-learning process at higher education institutions requires knowledge of students' learning needs and how well they are met by the utilized instructional models. This study evaluated active and passive learning styles to assist College of Agricultural Sciences (CAS) instructors at Colorado State University in understanding learning needs and to aid in future instructional design. Surveys were distributed in fall 2008 to students and instructors in the four undergraduate departments within the CAS to gather information regarding classroom experiences, learning and teaching preferences, instructional perceptions, and suggestions to enhance classroom environments. A total of 611 students and 28 instructors were surveyed. Results revealed the instructional models currently being implemented in CAS classes are adequately meeting the needs of undergraduate students; however, the students requested more active instruction. Of the surveyed students, 73% (442) tended to prefer active learning. Students who preferred active learning assessed they had a higher level of achievement (p<.05) and less associated difficulty (p<.05) with active instruction. Practical

Application, Demonstrations and Hands-on Opportunities were suggested by students as areas of possible future classroom enhancement. When asked to identify important classroom aspects, 57% (350) of students and 75% (21) of instructors identified Practical Application as one of the most important aspects in classroom learning. Instructor results revealed time and class sizes as the largest barriers to implementing active instruction. Of the instructors surveyed, 60% (15) utilized active instructional models one to two times per class period, usually through practical applications, exercises and problem sets, and discussions.

Key words: active, passive, learning style, instruction, college classroom, learning preferences, instruction preferences, agricultural classes

#235. University of Puerto Rico and USDA/CSREES/HSI Educational Grants: An Undergraduate Research Program, Six Years of Success

Abner Rodriguez and Elide Valencia
University of Puerto Rico

In 2003 and 2005 the College of Agricultural Sciences at the University of Puerto Rico, Mayagüez Campus (CAS-UPRM) was awarded two USDA Hispanic Serving Institutions (HSI) grants. These two projects targeted top-level undergraduate students and through a mentor, guided each of them in a research topic focused on environmental and molecular biology issues related to agricultural sciences. During six years of operation, forty-eight students have been recruited for research training on topics regarding the integration of agricultural, environmental, and molecular biology sciences. Thirty-three of those students completed their BS degree while the remaining fifteen are still active students. Twenty-four of our former participants were subsequently accepted to attend graduate or professional schools. At this moment three of those students have finished their MS program, two obtained their DVM degree, and one is a JURIS doctor. The other nine former students are actively working in federal and state agencies or private industry. Our students have presented 52 research abstracts in eighteen regional, national or international scientific meetings. All the participating students write a research reports that is published in the annual "CAS-UPRM-HSI, Proceedings Undergraduate Research Program." Four students are also co-authors of three peer-review journal articles published in the Journal of Agriculture of the University of Puerto Rico and the Journal of Waste Management. Our students have also won awards at national and international professional meetings. First, second, or third places in competitive presentations have been achieved by ten of our participants students in the annual scientific meeting for undergraduates organized by the CAS-UPRM, and another five did so in the 2006, 2007, and 2008 annual

meetings of MANRRS. Our project was also awarded honorific mention by the organization "Excelencia in Education" in 2008. These projects effectively addressed the target area: student experiential learning.

Key words: undergraduate students, research program

#245. Using a Three-Tiered Course Evaluation: A Case Study of a Junior and Senior Level Course in International Agriculture

Kathleen Kelsey, James Haynes, and Timothy Kock
Oklahoma State University

The role of the evaluator is integral to successful curriculum design and instructor preparation. The poster concept offered will serve as an evaluation guide for post secondary coursework and instructor effectiveness through an International Programs in Agricultural Education and Extension course at a major Southern Land Grant Institution. Traditionally this course has been taught by tenured faculty members at this institution, and until recently held an enrollment of more than 100 students. Multiple changes in the department have necessitated that this course be assigned to a graduate student working on a Ph.D. in the area of Extension Education and International Development. The focus of this evaluation was to determine if the quality and rigor of the course was being upheld. The evaluation focused on the effectiveness of the instructors' teaching methods and how conducive it was to student learning, if the course objectives were being met, and what the actual student perceptions were of the course. Three sources of data were collected using a triangulation mixed-methods approach to establish validity and reliability. Tools used to obtain the findings included historical documentation, peer-assessment, and student focus group discussion. Based on the findings, it was concluded that course objectives were being met; however, issues were present concerning instructor effectiveness and it was advised that motivational teaching methods be employed to motivate students and enhance learning.

Key words: longitudinal course evaluation, peer assessment, student assessment

#247. Alternative Assessment in Applied Science Courses

Bonnie Walters and Sylvia Kehoe
University of Wisconsin-River Falls

Traditional assessment methods of exams and quizzes are often used to determine students' content knowledge and understanding. These assessment tools are more affective for some learning styles and preferences than others. As students with a wider range of learning styles and preferences enroll in higher education, assessment methods need to change. Alternative assessment methods have been successfully integrated into three applied science courses: (1) Science of Food, (2) Principles of Nutrition, and (3) Agricultural Biochemistry. Assessment methods used in these courses to supplement exams and quizzes include application papers, creative diagrams and models, and project options for the final exam. All three assessment approaches allow students to choose the specific example or format used to demonstrate understanding of course content. Student engagement in the alternative methods varies each semester. Digestive system diagrams and models from the Principles of Nutrition course range from simple posters to elaborate three-dimensional models constructed from recycled materials. The percent of students choosing the project option for the Agricultural Biochemistry final exam ranged from 15% to 75%. Grading rubrics guide instructors to provide consistent evaluation and maintain a focus on the content, not presentation, of each assignment. The alternative assessment methods described have shown to be effective tools for measuring student understanding of course content. Grading the alternative assessments does require additional time and effort. Even though these assessment techniques demand more of instructors, the rewards in student learning far outweigh the costs.

Key words: alternative assessment

#249. Leading Ag to a Promising Future: Understanding the Leadership Development Needs of the Agricultural Community

Keyana Ellis, Eric Kaufman, Holly Kasperbauer, Richard Rateau, and Laura Stacklin
Virginia Tech

Agricultural professionals face challenges in the form of commodity markets, regulatory requirements, changing demographics, agricultural illiteracy, natural resource depletion, and economic survival. Agricultural communities need more leaders to effectively address such impacting situations. Future success of the industry depends on grassroots leaders who are facing these challenges daily. In response to this need, a variety of agricultural leadership programs have been developed. However, many of these programs are based on the Kellogg Farmers Study Program model from the 1960s, and the model most appropriate for agricultural professionals today may be considerably different. During 2008, a team of researchers and program planners conducted focus group sessions with representatives from [state]'s agricultural community, with the goal of assessing the leadership development interests and needs of that community. The findings suggest that a leadership development program is needed and should focus on

three areas: 1) knowledge of the changing industry; 2) relationship building across industry sectors; and 3) practical, transferable skill development. The skill areas of interest include creative problem solving, political advocacy, and communication. In terms of program structure and delivery methods, focus group participants were strong advocates for experiential learning. As one participant noted, "There's always that difficulty in taking what you do in the classroom, when you do a little exercise, and getting back to using it in your job." The findings of this study lead to important recommendations for further research and practice.

Key words: needs assessment, leadership, leadership development, agriculture

#268. Internship Assessment: Should We Use Student and Employer Input for Course Review?
Kevin Donnelly and Dana Minihan
Kansas State University

The 2008 CSREES review of the Department of Agronomy at Kansas State University indicated a need to tie assessment to curriculum review and revision. The Department has a very structured internship program and in 2008-09 it was revamped to include outcomes assessment. Employers evaluated students on meeting pre-internship written learning objectives, rated performance on work skills, gave input on suggested curriculum changes, and provided informal communication during on-site visits and at recruitment activities. Students evaluated their internship experience in categories matching departmental learning outcomes and provided input on skills they felt needed more emphasis in the curricula. Employers viewed K-State students as efficient, organized, dependable, considerate, and relating well to others and would like to see increased oral and written communications incorporated into courses. Through their written comments, students generally felt the internship experience supported departmental learning outcomes. To enhance the program, students would like coursework to include more current practices and provide hands-on experiences. Internships provide a powerful tool for attaining outside review of curriculum through its products – our students. Formalizing the process has provided useful assessment data to use in recommending changes to agronomy courses and curricula. Data from this project have been provided for ongoing curriculum review in the Department.

Key words: agronomy, internship, course review, curriculum review

#271. Evaluating Life Skills Gained at a State 4-H Horse School
Kari Turner, Jennifer Brown, and Dennis Duncan
University of Georgia

Educating children to develop multiple leadership skills has long been a concern of parents. These leadership skills, most commonly referred to as leadership life skills, may be delineated into seven categories and include: responsibility, relating to others, spirit of inquiry, decision making, public speaking, maintaining records, and building self-esteem. Researchers have found that 4-H youth programming can serve as an effective means to developing life skills in its members. In addition, researchers have found that youth working with animals is a remarkable contributor to the growth of life skills. Therefore, the following question was used to direct this study: Do parents expect their children to gain leadership skills necessary for future endeavors by participating in the [State] 4-H Horse School? Parents were asked to rank ten statements related to life development skills their youth may gain while attending the Horse School. The four highest ranking like skills that parents perceived their youth gaining as determined by mean scores were: assume responsibility for their learning experience (M=4.74, SD=.45), be self-disciplined when working with their horses (M=4.74, SD=.45), encourage self-confidence in youth (M=4.72, SD=.50), and encourage youth to gain valuable teamwork skills (M=4.64, SD=.5. According to the findings of this study and previous studies, youth participation in 4-H activities serves as an effective means of developing leadership life skills.

Key word: evaluating, leadership, 4-H, youth, teamwork

#275. Assessment of Student Perceptions of the Impact of Horsemanship Courses
Lee Wood, Chad Gasser, and Dean Winward
Southern Utah University

Assessment of curriculum is important for continuous improvement and appropriate planning for future programming. Limited information has been obtained regarding the effectiveness and potential of the horsemanship program at Southern Utah University (SUU). The objective of this study was to assess the personal and educational impact of horsemanship courses on students at SUU. A survey was developed that included 19 Likert items with five response levels. The survey was distributed to students enrolled in horsemanship courses during three consecutive semesters. A total of 163 students voluntarily completed the survey, which included students of various riding experience, majors, and class standing. Students expressed their strongest agreement with items related to gaining new knowledge (P < 0.01), followed by items related to providing personal

benefits. Students also agreed the horsemanship courses helped them develop skills and had a favorable impact on their education at SUU. In fact, 98.8% of students agreed or strongly agreed they would recommend the courses to others, and 47.1% of students even indicated the horsemanship program had influenced their decision to attend or remain at SUU. More than one-third of students also expressed interest in an equine science degree. We conclude from the survey results that horsemanship courses have a favorable impact on students through personal and educational value, and they strengthen the educational experience at SUU.

Key words: assessment, equine, horsemanship course

#276. Perceptions of Agricultural Science Courses as a Viable Option for High School Science Credit
Dwayne Pavelock, Doug Ullrich, Danell Woolery, and Stanley Kelley
Sam Houston State University

In 2007, the Texas State Board of Education and the Texas Education Agency modified science and math requirements for high school students. These current requirements require students to complete two additional core credits of science and math; however, no new course options were made available. The affect these changes will have on Career and Technical Education is hard to predict. The purpose of this study was to determine the perceptions of educational specialists regarding agricultural science courses as a viable option for satisfying secondary science credit. The target population for the study included both science and career and technical education specialists at each of Texas' regional education service centers, as well as the board of directors for the Science Teacher Association of Texas. Findings from this study revealed that professionals viewed the agriscience Texas Essential Knowledge and Skills (TEKS) as important for achieving secondary science credit. They strongly believed teachers should have a degree from a four-year university and complete a teacher education program at that level. No general consensus was found regarding what needs to be done so that career and technical education courses, such as agricultural science, can become a viable option for satisfying high school science credit.

Key words: agricultural science, agricultural education, high school agriculture

#278. Linking Levels of Bloom's Taxonomy to Course Levels and Class Standings
Rama Radhakrishna and John Ewing
Pennsylvania State University

Teachers are challenged to provide learning experiences and opportunities that enhance students' critical thinking. However, teachers tend to ignore this linkage in developing course objectives and learning outcomes. The purpose of this poster presentation is to link levels of Bloom's Taxonomy to course levels (001, 101, 201, 301, 401) and/or class standings (freshmen, sophomore, junior, senior). An understanding of this linkage will help: 1) develop course objectives and/or outcomes that facilitates critical thinking, 2) determine type of questions to be asked in class lecture or in exams, 3) determine sequencing of lessons from basic recall information to higher order thinking (analysis, synthesis, evaluation) as course levels progress from introductory to advanced, and 4) measure learning outcomes to see whether or not students are learning at higher cognition. For example, for freshmen or lower level courses, teachers should engage students in basic recall strategies and slowly increase the complexity of learning experiences, assignments and tests. Such strategies will provide a sound foundation of basics and adequately prepares students as complex subject matter or topics are taught in the next course level or when students take junior/senior level classes. The poster will illustrate strategies for linking Bloom's taxonomy levels to higher order thinking. Additionally, teachers should consider the maturity level of students, complexity of subject matter taught, learning experiences, and the amount of time to be spent on each learning activity. In summary, it is believed that students exposed to this type of linkage and sequencing will demonstrate higher levels of thinking.

Key words: Bloom's Taxonomy, cognition, sequencing

#279. Fabrication, Safety, and Demographics of Agricultural Mechanics Project Show Participants
Dwayne Pavelock and Doug Ullrich
Sam Houston State University

The Houston Livestock Show and Rodeo (HLSR) Agricultural Mechanics Project Show is the largest organized, competitive display of agricultural mechanic projects in Texas. Students participating in this agricultural mechanics project show experience perhaps the most culminating capstone opportunity by seeing their learning and productivity evaluated by industry experts. The primary purpose of the study was to assess fabrication-related aspects and basic safety practices of participants. Various demographics related to ethnicity, gender, career aspirations, and extra-curricular activities were also obtained. Eight hundred fifty survey instruments were distributed, and a 39.4% response rate was achieved. Descriptive statistics were used to analyze the data. Regarding the location of project fabrication, 16% indicated some fabrication occurred at a business in the community. Almost 96% (95.7%) indicated the project was constructed entirely by students, and 92% responded that

fabrication occurred primarily in an agricultural mechanics class; however, almost 11% (10.8%) indicated that non-Ag Mech students provided assistance. The data also revealed that 97.9% of the participants believed they received constant supervision while working in the shop, and 93.1% were required to score a "100" on a safety exam prior to working in the shop. While almost all (98.2%) were required to wear eye protection while working, less than 60 percent (59.6%) were required to wear hearing protection, and only 63.2% received CPR and/or first aid training prior to working in the shop. A little more than one-half (50.3%) do not show non-Ag Mech projects, while 68.13% intend to pursue a career in agricultural mechanics.

Key words: agricultural science, agricultural education, high school agriculture, agricultural mechanics, safety

#281. Community-Based Learning and Food System Study: The Potential of Integrative Engagement

Yona Sipos and Art Bomke
University of British Columbia

Community-based learning (CBL), including community-based research (CBR) and community service-learning (CSL), is increasingly heralded as an ideal approach to post-secondary engagement with complex, real-world issues. Here, we report and reflect on opportunities and considerations of incorporating CBL into post-secondary food system study. We present the case of the UBC-based Community Food Assessment Project (CFAP) in the Faculty of Land and Food Systems (FLFS) at the University of British Columbia, Canada. Each year, approximately 200 students in multidisciplinary teams learn about and participate in community food system assessments across the province of British Columbia, spanning urban, suburban and rural regions, through integrative, action-oriented, community-university partnered projects. CBL projects have focused on slaughterhouse policies, foodshed mapping, benefits of community gardens and food system education. Since 2006, mandatory, team-based CBR and optional, individual CSL have been instituted into the course; in 2008, 82% (160/196) of students opted to pursue CSL as part of their course requirement. A full 74% (111/150) of students agreed or strongly agreed that their understanding of food systems and food security improved through CBL, and 77% (115/150) agreed or strongly agreed that their projects were valuable for the community or organization. We compare student results to insights from community partner interviews. We share a preliminary guide to transitioning large classes, with and without a food system focus, to CBL. Such transition, and ultimately transformation, requires a desire to engage,

adaptive capacity and some dedicated resources.

Key words: community based-learning, food system study, post-secondary, engagement

#284. From Classroom to Community: Enhancing Graduate Education through Service Learning

Keyana Ellis, Eric Kaufman, and Richard Rateau
Virginia Tech

Slowly, silently, yet surely, there is a paradigm shift occurring in the structure of graduate education programs to include community engagement components. This transformation is in response to the demands for professionals who are engaged citizens with a deeper cognitive connection to both the discipline and the community. Research suggests courses that incorporate a service learning component with traditional curriculum address this need by allowing students to apply content learning to real world community issues. The purpose of this presentation is to discuss the pedagogical value of an innovative teaching approach in a graduate level course with an embedded service learning component. When designed properly, many educators find these unique developmental opportunities provide mutually beneficial gains for the student, university, and community. Grounded in experiential learning theory and the citizen scholar model, outcomes of engagement in these activities provide a holistic approach to the required 21st century leadership skills including critical thinking, problem solving, team building, communication, and reflection. During the fall of 2008, graduate students, in the course "Theoretical Foundations of Leadership," participated in projects with a goal to improve a real situation in a local agricultural community organization through applied leadership concepts and skills. Through the use of an appropriate needs assessment, students were responsible for identifying leadership needs, developing alternative options, implementing appropriate solutions collaboratively with the organization, and evaluating outcomes of their efforts. As a result of these efforts, both students and agricultural organizations showed significant improvements in their learning and application of leadership concepts.

Key words: service learning, graduate education, community engagement, needs assessment

#286. Who's Leading the Way?: Connecting Collegiate Student Organizations to their Leaders

Marlene Eick
The Ohio State University

Anna Ball
University of Missouri

Students in colleges of agriculture learn the technical and professional skills desired by employers

through a variety of experiences. Involvement in student organizations has been linked to the development of leadership qualities. Furthermore, student organizations in colleges of agriculture have been studied for the purpose of describing what those organizations provide. The purpose of this study was to examine the relationship between the characteristics of student organizations in colleges of agriculture and the characteristics of those organizations' positional student leaders. The population consisted of positional leaders of student organizations in colleges of agriculture within institutions created by the 1862 Land-grant Act. A stratified random sample was taken from the population. Participants completed an online questionnaire with questions seeking to describe the characteristics of the organization and specific characteristics of the participant, including the amount of time the student spent each week on organizational activities and responsibilities, as measured in hours. The independent variables in the study were the characteristics of the undergraduate student organizations, as well as the time spent by the positional leader. The dependent variable was the organizational leaders' characteristics. Study results showed that 60% of positional leaders are female, almost half are seniors, and the majority have grade point averages above 3.0. Positional leaders who spend more time on organizational activities and responsibilities tend to have a lower grade point average. Student organizations that plan more programs tend to have more female positional leaders. The results raise implications for undergraduate student involvement in collegiate organizations.

#287. Learning Outcome Based Online Assessment

Ronald Hanson and Rosalee Swartz
University of Nebraska-Lincoln

The Department of Agricultural Economics at the University of Nebraska is in its fourth year using an online assessment management system, Program Excellence through Assessment Research and Learning (PEARL). This system features documentation of institutional, college, and department mission statements and learning outcomes. The first objective of this presentation is to demonstrate how the PEARL system functions, complete with progressive stages which include planning, feedback/response on planning, reporting of results, and feedback/response regarding the results. PEARL review is conducted by cross-college faculty teams. In addition to feedback at multiple stages, the PEARL system enables departments to learn from other departments' "best practices." The second presentation objective is to share the process and materials the Department used to move assessment from indirect methods to one that involves both indirect and direct methods of

determining students' levels of outcome based learning. The Department identified outcome based learning opportunities (course based) and student performance to be evaluated. In addition, it developed and tested an outcome learning based scoring rubric to evaluate student work. In fall of 2009, the University of Nebraska is implementing a learning outcome based comprehensive education system which requires that for courses approved as meeting one of ten learning outcomes, student work be evaluated to demonstrate learning. This presentation will outline the progress the Department made in its assessment process which puts it in an ideal position to meet requirements of both the University's comprehensive education and assessment systems.

Key words: online, best assessment practices

#289. Got Ag Courses?

Gail Good
Penn State, Altoona

Recruiting students is vital to the success of college academic units including the agricultural sciences. The Pennsylvania State University is a multi-campus system comprised of the larger University Park campus with twenty additional smaller campuses located throughout the Commonwealth. While few agricultural classes are offered at the smaller campuses, in 2006 Penn State Altoona, with 4,000 students, took the initiative to not only increase the number of agriculture classes offered but also include them as general education courses that could fulfill a degree requirement for all students. Prior to this time, one ag-related course was offered per year averaging 35 students. Today, Penn State Altoona offers multiple sections of five agriculture courses averaging 125 students each semester. Students have a better understanding of issues affecting agriculture through research and class discussions plus the opportunity to network with faculty and deans from University Park who are incorporated into the classes as guest lecturers. Having non-agricultural, and often inner-city students enrolled in said courses, introduces agricultural issues and potential careers to a greater audience. This enhanced awareness has contributed to the increase in agriculture major enrollment at Penn State Altoona. Overall, agriculture major enrollment at Penn State Altoona has increased from 68 students in spring 2006 to 116 students in spring 2009. Eighty-nine students from fall 2006 to spring 2009 have changed to agriculture from science, human development, business, and English. The new agriculture classes offered and an increase in Ag Club activities have sparked an increase in campus advisors referring students to agriculture majors.

Key words: recruitment, non-traditional audiences

#293. The Elements of a Two-Year Equine Degree Program: A Delphi Study

Robin Long
University of Wyoming

Chris Morgan
University of Georgia

Equine degree programs at two-year colleges are increasing in popularity yet there is little research describing the elements these programs should contain, which is a foundation for evaluating current or proposed programs. The purpose of this study was to determine the components necessary for an effective two-year equine degree program. The Delphi technique was used to gain consensus among instructors of equine programs at two-year public institutions located in western states offering an Associate's Degree in an equine science area. The results of the study suggest that an equine program needs support from the institution and the industry to be successful, have well qualified faculty, and a defined area of focus. Due to the diversity of the equine industry it is important that colleges determine an area of specialization and develop the courses, equipment, facilities and objectives to address that focus area. The top ranked program objectives were to prepare students to successfully compete for employment and to develop the skills needed to work in the equine industry by utilizing hands-on experiences and applied study. An interesting finding was the objective participants ranked lowest was preparing students to transfer to a four-year institution. Additional studies should be conducted to determine if the components found in this study are the same for institutions in other regions of the country and to identify objectives for specific equine courses. The information from this study may benefit two-year institutions by establishing a framework to use when implementing new equine programs or evaluating existing programs.

Key words: Delphi, equine, two-year

#296. A Case Study of Students' Perceptions of the "Transfer Zone" at Oklahoma State University

Chris Morgan
University of Georgia

Amy Simmons
Oklahoma State

Many institutions have implemented programs to facilitate the transition and integration of transfer students into their new environment, and Oklahoma State University College of Agriculture is no different. To assist students during their transition process the Transfer Zone learning community was established by the college in the pursuit of facilitating the integration of students into the academic and social climate of a four-year institution. The purpose of this case study was to evaluate this learning community by describing the transfer students' perceptions of the Transfer Zone using Tinto's (1975) model for integrating transfer students into a four-year institution. The study found the Transfer Zone learning community did not meet the needs and expectations of the students. It was perceived by students that the Transfer Zone did not contribute to their academic success, social integration, or involvement with clubs and organizations. Based on the findings of the study the researchers made several recommendations that included: improvement of living situations, faculty involvement, mentors, and structured group sessions. Additional research should be conducted in a longitudinal nature to shape the programming to meet the needs of future transfer students. In addition, specific goals for the Transfer Zone should be established and measured annually. Follow-up with participants that withdraw from the program early or do not return for the second year should be conducted to determine if the Transfer Zone could have helped to facilitate their retention.

Key words: learning community, case study, transfer students

#297. Entomology for Educators: Assessing Changes in Confidence, Motivation and Knowledge Base of Science Educators, Using Classroom Responder Technology

Carmen Greenwood and Jack Dillwith
Oklahoma State University

Entomology for educators is a newly developed course at Oklahoma State University designed to provide secondary science education majors, and educators currently working in the field with resources needed to use insects in the classroom. Insects provide an ideal system for illustrating a wide range of biological science concepts. They are inexpensive, readily available to educators, easy to rear, with proper instruction, and less regulated than other live specimens. Educators completed a series of 17 modules designed to enhance their knowledge base, confidence level and motivation to use insects as a model for science education in the classroom. Knowledge base, confidence, and motivation levels of the educators were assessed prior to and immediately after completion of the course. Assessment of changes in motivation and confidence levels of the science educators was based on Keller's ARCS model, named for the four components related to the learner's motivation: attention, relevance, confidence and satisfaction. An electronic classroom response system (CPS) was used for assessment and to solicit feedback throughout the course. Self-assessed confidence levels increased over 57%, motivation levels increased by 10%, and knowledge base performance increased by over 80% in some cases. The results of this study represent the first

presentation of this course in the fall of 2008. Entomology for educators will be offered (and assessed) in the fall of 2009, with feedback from 2008 incorporated.

Key words: science education, assessment, entomology

#305. Poinsettia Production for Cultivar Trials Provides an Experiential Learning Opportunity

Kimberly Williams
Kansas State University

Christopher Catanzaro
Virginia State University

Daniel Warnock
University of Illinois

Student experiential learning opportunities are outcomes of the Mid-American Poinsettia Cultivar Trials conducted at Kansas State University, the University of Illinois, and Virginia State University (www.ksre.ksu.edu/poinsettias). At each location during fall 2008, students in traditionally-taught plant science and horticulture courses produced poinsettias that were part of the industry-sponsored cultivar trials. Various aspects of poinsettia production and marketing were covered throughout the semester using lecture and lab formats. Student learning outcomes were quantified using a survey with self-reported scores (Likert-type scale of 1 to 6 where 1=strongly disagree and 6=strongly agree) in response to a series of written statements. The same survey was given at the beginning and end of the semester. A total of 37 students across locations completed both the pre- and post-course surveys. Scores showed greatest increases with regard to confidence in being able to produce a high quality poinsettia crop and familiarity with poinsettia cultivars and their traits, and showed moderate increases related to some specific crop production practices. Scores increased least with regard to marketing considerations such as consumer preferences. Results at three universities suggested that experiential learning opportunities during production of a wide variety of commercial poinsettia cultivars yielded positive learning outcomes despite the differences in teaching methods used.

Key words: crop production, student learning outcomes

#306. Making Assessment Work for You: Assessing Communication Skills

Dixie Watt Reaves and Mary A. Marchant
Virginia Polytechnic Institute and State University

Most faculty would agree that communication skills are critical for today's college student. The question is, where do students gain such skills? Is it the role of each department to provide discipline-specific communication skills, or should the English and Communication Departments on campus be responsible? How does one assess students' communication skills? Prior to 2005, Virginia Tech had a "writing intensive" (WI) requirement, whereby students had to take one in-major course and one other course that had been approved as WI by the University Core Curriculum Committee (UCCC). In order to be approved as WI, the course had to meet a specified set of criteria, including the number of pages written and the number of times revision was allowed. The university has since moved to a broader communication requirement, ViEWS: Visual Expression, Writing and Speaking. Upon implementation of the ViEWS requirement, departments were tasked with "proving" to the UCCC that their graduates, by virtue of the courses taken in their curriculum, would meet the objectives of ViEWS. The approaches to fulfilling the ViEWS requirement varied greatly by department. Ideally, departments identified specific learning objectives for each communication component and created specific assessment techniques to measure learning outcomes. If designed appropriately, data could be used not only for internal documentation, but also to meet external accreditation or reporting demands. At a time when accountability and documentation are increasingly required, examples of well-designed ViEWS programs can be helpful to other departments that are struggling with the ongoing need for quality assessment.

Key words: communication, accountability

#310. Enhancing Citizenship in an Introductory Animal Science Class through Inquiry-Based Experiences with a Campus Aboriginal Community

Laura Clark, Alex Pasternak, Erika Strande, Dana Penrice, and Frank Robinson
University of Alberta

The major student project component of an introductory Animal Science class provided students with the opportunity to communicate an agricultural message to the general public through an evening of student presentations. While keeping the structure and framework of the project the same as previous "There's a Heifer in Your Tank" projects, the fall 2008 term was asked to develop topics around the relationships between the agriculture of today and the ties between animals and aboriginals in the past. Students were asked to communicate a minimum of ten science points based on their topic and to deliver them in a creative manner in a public forum involving 4.5 minute music and drama-enriched presentations. Aboriginal professors and elders associated with the University of Alberta advised students and mentored them through project planning. Topics ranged from a

comparison of grazing techniques, to the use of the carcass, to the evolution of manure as a fuel source. Students were required to think critically about the implications of agriculture on societies of the past as well as today. An influential guest speaker from the Aboriginal community provided a keynote lecture the evening of student presentation. This process engaged the aboriginal community in a dialogue around agriculture, while providing animal science students with an unconventional learning opportunity. Examples of projects and student testimonials will be presented.

#314. Guided Inquiry Active Learning Strategies in Veterinary Medicine

Cheryl Bailey
University of Nebraska-Lincoln

Students in the Veterinary Medicine 2+2 program at UNL come from a variety of undergraduate institutions. Teaching molecular biology to veterinary students provides the challenges and opportunities of combining discipline-specific relevance with a high level investigation while working with a population of students with varying preparedness. Guided-inquiry active learning strategies can address these challenges and opportunities. First year veterinary students are provided with 60 base pairs of DNA sequences from genes of veterinary interest as found in Animal Genetics. Students are guided through active learning gene model activities and then through bioinformatics web-based programs to find complete gene sequences, proteins sequences, and protein structures. Literature and general web searches provide cellular mechanisms, specific reactions, and whole organism relevance of mutant and normal protein sequences. Students work in groups to produce a final poster that explains the particulars of the genetic sequence, mutations of veterinary interest, cellular pathways, and phenotypes of veterinary interest. This experience culminates with a poster presentations to interested undergraduates, graduate and veterinary students, and faculty. Genes explored regulate hair length in cats, double-muscle phenotype in cattle, tenderness in beef, and deafness in dogs to spider-lamb syndrome. Student assessment results and examples of guided-inquiry active learning are presented.

Key words: active learning, guided inquiry, veterinary medicine, molecular biology

#320. Developing an Inter-Disciplinary Studies Degree in Renewable Energy: Doing More with Less

Kevin J. Bacon and Dave G. Hunter
Western Illinois University

Students enrolled in an honors course expressed an interest with the wind energy industry. From this interest, a survey course in wind energy was developed. As student interest in renewable energy expanded, a bio-fuels focus was added. The wind industry is rapidly expanding in many parts of the country, particularly Illinois which already ranks in the top three states in ethanol production. A key challenge, especially for the wind industry, has been recruiting a trained workforce that wants to live in rural areas. Based on student interest and feedback from industry and government, a three-track interdisciplinary degree has been developed at Western Illinois University. Track one focuses on Public Policy, Planning, and Management. Track two is Wind Technology, and track three emphasizes Bio-energy Technology. Each track has been developed to facilitate the Illinois Articulation Agreement with community colleges. The degree involves faculty from multiple colleges and departments. Since a framework for granting interdisciplinary degrees already existed, there was no additional requirement for state approval allowing the university to move forward with the initial course offerings more quickly than normal. The degree tracks have been vetted with the wind energy industry, bio-fuels industry, and state government leaders via an advisory board. By using some existing courses intact and refocusing a few others, the degree program is being put into place with no additional faculty resources. The process undertaken to accomplish this goal in a time of increasingly scarce resources for new programs provides a model that others may find useful.

Key words: multi-disciplinary, wind energy, bio-fuels, degree programs, renewable energy, articulation

#322. Comparing Factors Used in Calculating Teaching Loads within the Delaware Study to Factors Used at the College of Agricultural Sciences and Natural Resources at the University of Nebraska-Lincoln

Dann Husmann
University of Nebraska-Lincoln

Land grant colleges across the country are experiencing tremendous stress in dealing with the current and future budget challenges that may drastically affect their ability to serve their students. The Delaware Study has been used in determining faculty teaching load, direct instructional cost, and budgeted scholarly activity. The academic appointment for a faculty member in the College of Agricultural Sciences and Natural Resources (CASNR) includes undergraduate and graduate instruction, academic advising, advising student organizations, CASNR and university committee service, recruitment and retention activities, community service, professional service, and textbook and instructional software development. Consequently, standard parameters of productivity such as student credit hours generated were inade-

quate measures of a CASNR faculty member's contributions to the unit and college mission. This academic appointment formula was changed in September 2006 to align itself closer with the Delaware Study since over 39 states are now considering legislative mandates requiring a system of accountability reporting for its faculty members in higher education. This presentation will compare and contrast the various factors used to calculate faculty teaching load within the Delaware Study to the existing system used in CASNR. All colleges of agriculture must seriously consider how faculty-teaching loads are being calculated on their campuses so accurate and comprehensive responses can be provided to legislative bodies where state budget reductions are being debated and discussed. If left to data found only in the Delaware Study, inaccurate pictures may be developed that could drastically change the landscape of many of our land grant colleges.

Key words: Delaware study, FTE assessment, teaching FTE calculations, teacher workload

#324. Implications of Performance Assessment in Meats Abattior Procedures Practicum at Oklahoma Panhandle State University

Peter Camfield and Carolyn McCargish-Camfield
Oklahoma Panhandle State University

The purpose of this study was to develop an authentic assessment for laboratory practicums within the agriculture curriculum and to determine the effect the use of scoring rubrics had on inter- and intra- rater reliability as well as, the overall effect on student learning. A content-related/performance based scoring rubric was developed to determine student proficiency in the laboratory practicum for the "Meats abattior procedures" course. The scoring rubric was used to assess student knowledge and proficiency during their performance in the laboratory setting. Prior to the development of the content related rubric, a score sheet with numerical values for key elements of the lab procedures was utilized to determine students' proficiency. All instructional personnel were provided training on the use of the scoring rubric to ensure consistency and reliability in scoring. Students were provided with the rubric prior to their performance in the lab practicum. During the course of the study, noticeable changes in intra-rater reliability were not noticed. This is attributed to one faculty member utilizing the existing assessment instrument that was developed and utilized solely by that faculty member over an extended period of time. Noticeable changes in inter-rater reliability were observed over the course of the study. Based upon a survey provided to the students, it was indicated that the new

content-related/performance based scoring rubric facilitated student knowledge of expectations for performance in the practicum setting. Further use of scoring rubrics will provide increase authentic assessment in practicum/lab settings.

Key words: assessment, rubric, performance based practicums

#326. Riding to the Future: Assessing S.H.O.T. Educational Clinics

Keith Patrick and Kristopher Wilson
Texas Tech University

The Stock Horse of Texas Association (SHOT) was formed in 1998 by interested horsemen, trainers, extension agents and faculty from state universities. Stock Horse of Texas has maintained an educational focus through collaboration with Texas AgriLife Extension offices and now offers clinics prior to every show as well as collegiate competition that has attracted competitors from colleges and universities nationwide. SHOT has experienced steady yearly growth and has now chartered the American Stock Horse Association (ASHA) which will immediately begin the formations of other state stock horse associations. As a result it has now become important and necessary to assess SHOT educational clinics in order to improve these clinics to create a model program for implementation in new associations. Demographic data can be used to increased focus on interested groups for marketing and development. Learning, as defined in Kirkpatrick's Four-Levels of Evaluation Model, was used as the theoretical foundation for this retrospective pre-test questionnaire. Skill and Knowledge Level (SKL), Comfort Level (CL), and Demographics information was collected at nine clinics during the 2007-2008 show season. One hundred ninety-one responses were received, and all data were compiled in Microsoft Excel. Simple and weighted means were used to calculate percentages of increase from pre clinic to post clinic in SKL and CL. Increases by question across all shows were found in a range from 5.38% to 23.86%. SKL average increase was 17.37% and CL average increase was 14.76%. The overall average increase across all nine SHOT clinics was found to be 16.18%.

Key words: clinics, SHOT, assessment, education

#327. English Language Learning for Agriculture Majors: Assessing Learning and Teaching

Catherine Mazak, Rosita Rivera, Sandra Soto, and Zaira Arvelo
University of Puerto Rico, Mayagüez Campus

This presentation reports the results of a year-long, content-based, technology-enhanced, basic English course for native Spanish speakers. The course fused agricultural content, English language, technology, and academic strategy learning in order to

increase the motivation and academic English proficiency of thirty incoming agriculture majors at the University of Puerto Rico in Mayagüez. The researchers assessed the program in several innovative ways. (1) Performance-based assessment measures were used in order to measure students' improvement in English. (2) Surveys were used to periodically assess students' technology learning. (3) Focus groups and interviews were used to assess the students' motivations and attitudes toward the class. (4) Observations by teachers external to the project gave insight into the quality of the teaching and the integration of technology, content, English, and strategy learning in the classroom. (5) Researchers' own reflections served as a self-assessment of performance. (6) Retention rates of program participants were compared to overall agriculture major retention rates. The analysis of all of the collected data revealed several important outcomes. Results showed that students did indeed improve their academic English performance and their ability to use technology for academic purposes. Both qualitative and quantitative data showed that the combination of technology, agricultural content, and English increased student motivation and positive attitudes towards the field of agriculture. The materials developed for this basic English for agriculture majors course will be shared and techniques for implementation in different cultural contexts will be offered.

Key words: ESL, content-based language learning

#328. Teaching Assistant Collaboration in the Design and Implementation of Equine Behavior and Training Manual

S. McKenna, C. Barnett, K. Jogan, and N. Jack
University of Arkansas

The semester-long Equine Behavior and Training Laboratory course at the University of Arkansas DE King Equine Program pairs students with a project horse. To ensure student success in achieving targeted course outcomes, University instructors enlist and share teaching responsibility with teaching assistants (TAs), who serve as peer mentors to the students in their charge. To organize the lab course, TAs also collaborated with instructors in the design and initial implementation of a supplemental course manual that organizes process and delivery of the instructional program. The TA manual mirrors the student lab manual, but reinforces student lab manual structure and significantly enhances its content by including setup times, equipment necessary for demonstrations, back dated calendars, detailed checklists, and photographs. The shared design of the manual promoted TA engagement and responsibility and

strengthened TA organizational skills, as focus group interviews document. The poster session (1) describes the process used in designing the TA manual; (2) indicates key components that reinforce the lab manual and provide clearer definition to the instructional program; (3) provides a sample instructional unit; (4) documents outcomes for TAs and students. Poster presenters include TAs who will share the completed manual and provide insight into the design process. The TAs will comment on their engagement in the teaching and learning process as they shared power with instructors in addressing learning objectives of a key course in the Equine Program curriculum.

Key word: student collaboration

#330. Implementing and Assessing Demand-Driven Curriculum

K. Jogan, N. Jack, M. Jogan, and A. Scott
University of Arkansas

This session describes a model for (1) defining specific program outcomes that relate to needs of potential employers; (2) adding objectives to respond to those needs; (3) assessing student outcomes in the curriculum; and (4) using assessment data to refine objectives and instructional activities to further connect curriculum with specific employer needs. A component of the mission of the University of Arkansas' Department of Animal Science is to "prepare students for productive careers in Animal Science and related fields." D. E. King Equine Program curricular objectives were reviewed using an Institutional Review Board-approved survey administered to potential Arkansas employers in 2006. Curricular objectives were rated by respondents on a Likert-type scale; skill-sets and objectives desired by potential employers were identified. Based on the results of this study, additional skill-sets were incorporated into Equine Program curriculum. Both an IRB approved instructor administered skill assessment and student self-assessment over course objectives were given to students participating in capstone internships offered at the University. Preliminary findings indicate (1) that students' skills (meeting additional course objectives) were greatly enhanced by the internship, controlling for initial knowledge; and (2) that students rated themselves higher on a greater proportion of course objectives at the middle and end of the internship than at the start. Follow-up assessment continually refines the connection between instructional programming and program objectives. The presenters will share steps in the process linking employer needs to curricular outcomes, as well as data supporting conclusions that student learning in the equine program addresses newly added outcomes.

Key words: outcomes, assessment

#333. Harnessing the Power of Teamwork: Preparing Agriculture Faculty in the Effective Use of Teams

Mark Burback, Gina Matkin, Heath Harding, and Kem Gambrell
University of Nebraska-Lincoln

Companies increasingly rely on teams to improve productivity, and consequently the agricultural industry will expect colleges and universities to prepare graduates to effectively work in teams. Instructors must be equipped to prepare students to fully capitalize on the power of teamwork. This study examined the affect of agriculture instructor training in, and practice of, methodologies to increase student teamwork knowledge, skills, and abilities. Eleven instructors in agriculture related courses underwent a year-long program of instruction in the effective use of teams. Instructors participated in a one-day workshop conducted by a nationally recognized expert in teamwork and monthly discussion groups, reviewed current literature, and integrated new teamwork pedagogy into their courses. Results of pre- and post-test scores of 350 students in agriculture courses indicated significant improvement in their teamwork knowledge, skills, and abilities. Implications of these findings for future research and practice are discussed.

Key words: teamwork, pedagogy, faculty training

#335. Distance Education Brings Opportunities to Place-Bound Students

Tricia Clapp and Kathleen Kelsey
Oklahoma State University

Amanda Evert
Redlands Community College

The purpose of the Agriculture Pathways Partnership, an online degree program offered through five colleges, is to provide access to higher education opportunities to place-bound students to complete their bachelor's degree. The Partnership is a hybrid degree consisting of distance and traditional courses offered by Missouri State University through the collaboration of distance sites. Students completing the Pathways program earn a Bachelor of Applied Science in Agriculture degree from MSU after completing 85 hours at the community college level and 40 hours of upper division hours through MSU. Students taking courses through MSU have the option of earning 40 upper-level credit hours through courses offered via interactive television, Internet courses, weekend courses, and internship experiences. This paper will report on an evaluation of the processes, outcomes, and impacts the Agriculture Pathways Partnership has on Oklahoma students. A mixed-methods design was used to collect survey and case study data. The focus of the evaluation was on the students being served at NEO and Redlands Campuses. The results will be used by site coordinators at NEO and Redlands campuses for improvement of the Partnership. According to the preliminary results, the majority of students are satisfied with the program. The results of the study demonstrate a need for further research. We recommend that stakeholders are included in additional discussions regarding the organization of the partnership. Our recommendations include improvements to current class schedules, interactive technologies, and program administration. Recommended additions include distance education teacher training workshops, student orientation activities, and weekend workshops

Key words: distance education, hybird degree

#338. Assessment of Student Team Member Effectiveness in Collaborative Learning

Harouna Maiga, D.L. Crawford, B. Dingmann, M. Grave, S. Lim-Thompson, K.W. Meyers, and K. Thompson
University of Minnesota, Crookston

Collaborative learning groups of two to four students were used in multi-disciplinary and student-centered learning classrooms to assess how selected variables influenced team members' self-evaluation of ability to complete a project and how team members evaluated each other within their group. A peer-review survey model of assessment of team member effectiveness was revised by seven faculty of different disciplines and used to rate the significance of five variables on team collaboration and effectiveness. Variables were 1) member contribution to team work, 2) member interaction with teammates, 3) member keeping the team on track, 4) member expectation of quality, and 5) member having relevant knowledge, skills and abilities. The survey also asked teammates to provide comments on their scoring of each variable. The intended meaning of each variable with examples was given to help guide team members in their rating. All variables were rated on a scale of 1 (strongly disagree) to 5 (strongly agree). The survey was used in five courses (Accounting 4220, Biology 1009, Early Childhood Education 2300, Feeds and & Feeding 2104, and Hotel Restaurant 2231). The instructor of each course assigned team members based either on specific skills each member brings to the team and/or randomly assigned. Courses had different learning activities or projects. Data from each course were analyzed separately with the one-way ANOVA procedure. In general, individual variables effect on groups was significant ($P < 0.01$) in the Biology and Feeds and Feeding courses which had larger number of groups, but not in the other three courses with fewer groups. There was no difference ($P > 0.05$) between members self-evaluation and how they rated others within the

same group for all courses. Modifying grouping strategy to improve collaboration between team members may provide for more effective and productive learning classroom projects.

Key words: assessment, team member, effectiveness, collaborative learning

#342. Effectiveness of Peer-Led Study Groups in Undergraduate Animal Science Courses: Do They Improve Student Academic Performance?

M. Amstutz, K. Wimbush, and D. Snyder
Ohio State University ATI

This study examined the effectiveness of peer-led study groups on undergraduate student academic performance in animal science courses over a ten year period. Twenty-two classes derived from five courses over ten years were selected for peer-led instruction based on prior student course performance, enrollment, and rank. Faculty and staff selected peer instruction leaders based on past academic performance in the course. Faculty instruction remained consistent over the course of the study. Statistics were performed using SAS. Of the 718 students enrolled, 356 (49.6%) participated in at least one peer-led study session. Participating students attended an average of 4.0 + 3.6 study sessions per class. A positive correlation existed between study group attendance and course grade (r = 0.24, p < 0.001), cumulative grade point average (GPA) (r = 0.22, p < 0.001), and graduation (r = 0.12, p < 0.01). Additionally, a strong correlation emerged between prior academic performance (GPA) and course grade (r = 0.73, p < 0.001), and graduation (r = 0.44, p < 0.001). The study also showed a weak positive correlation between tutor and course grade (p < 0.01). Regression analysis of study sessions and course grade indicated that for each study group attended there was a +0.08 change on average in course grade. Therefore, students needed to attend four study sessions on average to improve their course grade (ex. B to B+), suggesting a cumulative effect. Anecdotal instructor observations suggest many students that would have benefited from study group participation simply failed to attend.

Key words: study groups, effectiveness

#351. Educating Leaders of Tomorrow, But Leaders of What?

Brad Wuetherick
University of Alberta, Canada

You would be hard pressed to find an individual connected to any higher education institution in Canada, the U.S., or elsewhere around the world who has not heard someone use the phrase "educating leaders of tomorrow" when referring to the learning environment in their institution. In an age

when our students enter the world to face increasingly complex global challenges, it is hard to argue that educating the leaders of tomorrow is not a worthy goal, particularly in the context of agriculture. But what does "educating leaders of tomorrow" really mean for our institutions or our individual teaching practice? This interactive session will provide an opportunity to discuss the rhetoric behind the phrase "educating leaders of tomorrow," to discuss our own roles as university instructors in creating or facilitating an environment that develops our students as leaders ready to take on the great global challenges in systemic and adaptive ways, and to provide an example of a leadership framework that can help us unpack what it might mean to incorporate the development of tomorrow's leaders as a fundamental learning outcome of our teaching and learning environment in agriculture.

Key words: leadership, global challenges

#352. Changing Times: Experiences from the Faculty Lives of Men and Women in Agricultural Education

Brandy Ciaccio and Billye Foster
University of Arizona

Brenda Seevers
New Mexico State University

James Knight
University of Arizona

John Elliot
Texas A & M University

The evolution of under-represented groups in Agricultural and Extension Education (AEE) reflects change. Updating the profile of professionals involved with university level AEE, was the primary goal of this study utilizing objectives addressing demographics, perceptions of the workplace and variation of experience among genders, ethnicities and years-experience. In 2005, the USDE reported female and minority university enrollment continuing to climb. Women make-up nearly 60.0% of bachelor's degrees, and minorities make-up approximately 25.0%--reflecting the changing face of AEE potential professionals. Insight into the experiences of professionals leads to understanding satisfaction within the profession. Data can be examined and utilized to increase retention of experienced professionals regardless of gender or ethnicity. The population included faculty, specialists, administrators, and graduate students at universities and in extension fields. Data reflected variations of job satisfaction. When asked to rate their level of job satisfaction, 50.0% of males reported being "very satisfied" with their position. No men reported "ready to quit." By contrast 27.0 % of women surveyed were "very satisfied" with their positions and 4.0 % of women reported either "dissatisfied" or "ready to quit." This profile serves as historical documentation of the changing face of AEE, and becomes a tool to

remove barriers and obstacles preventing the embracement of diversity. Variations of the professional experience based on gender, ethnicity, and years-experience establish a mechanism for recognizing opportunities to welcome new faces and ideas. The fresh perspectives and modes of interaction provided by a diverse profession are essential to a diverse, global society.

Key words: gender, ethnicity, agricultural education

#353. Teaching Innovation Using Student Response System
Zahra Afrasiabi and Frieda Eivazi
Lincoln University

Student Response Systems provide a new way of transformation of knowledge in the classrooms. Instructors can explore strategies for allowing students to become active and responsible in their own education. It captures students' interest, draws them into the learning environment, and actively engages them. For the past two years we have been using student response systems (clickers) in our classrooms and designed clicker-based instructional strategies. To achieve the optimal benefits of this technology faculties must master the technical skills required by clickers, learn to design effective questions, and the art of classroom management. Our experience shows that students' participation and learning improves in the classrooms equipped with this technology compared to conventional lectures. This project is funded by USDA, 1890 Teaching Capacity Building Grant.

#354. Recognizing a Student and Curriculum Need: Developing IPM 5305, Principles of Pesticides, at the University of Florida
Fred M. Fishel, R.J. McGovern, and M.A Mossler
University of Florida

Initiated in 1999, the Doctor of Plant Medicine (DPM) curriculum at the University of Florida has the goal of educating graduate students to enter the agricultural plant production industry. A missing component of the original curriculum was a practical course designated for teaching pesticide technology. Students that enter the DPM program don't necessarily have agricultural backgrounds, and thus, do not have a level of production practices, particularly to Florida conditions. Florida's environment is conducive to severe pest pressure in agricultural commodity production. In the early years of DPM, students were required to take advanced courses related to pest control, but having no foundation in pesticide technology. Principles of Pesticides, IPM 5305 was developed and offered in 2007. IPM 5305 is a web-based, three-hour credit course, which students access online during the week, but meet in person each Friday for discussion, review, and exams. The online portion utilizes Articulate software technology which allows PowerPoint® slides to interface with audio narration. A written text script is also provided for every lecture's slide. Initial student evaluations were overwhelmingly positive for IPM 5305.

#355. Installation of a Residential Irrigation System: A Significant Learning Experience in a Landscape Irrigation Undergraduate Course
Catherine C. Lavis and Laura A. Brannon
Kansas State University

An irrigation course was developed at Kansas State University by integrating several Irrigation Association professional training classes into a semester course for undergraduate students. A significant learning component of the course is the installation a residential irrigation system during the laboratory sessions. The project allows students to learn the procedural skills required to install an efficient irrigation system. In order to evaluate the influence this experiential learning project may have on student's confidence to perform particular irrigation skills, a survey was used. The survey was administered to 70 undergraduates during the fall 2006 and 2007 semesters prior to and after the completion of the irrigation system. Using a Likert scale, students responded to two questions pertaining to ten specific irrigation skills used during the installation project: 1) whether or not they actually performed the particular skill during the installation and 2) how confident they were to perform that aspect of installation on their own. The correlation between whether students actually performed the particular skill during the installation and how confident they were that they could actually do it on their own was significant ($r = .46$, $P < .0001$). During the fall 2006 semester, 38 students were asked to compare their actual experience installing the system to what they learned during lecture and by reading the textbook; participants said that installing the system greatly increased their understanding (Mean = 7.84, SD = 1.41) and increased their confidence to perform particular skills (M = 7.84, SD = 1.03). In general, students do benefit from this type of experiential learning, as documented in the survey.

#356. Assessing Wiki as a Tool for Building Communal Constructivism in a Graduate-Level Course
Kathleen K. Kelsey, Hong Lin, Tanya C. Franke
Oklahoma State University

Wikis have been praised as tools that enhance collaborative writing within educational environments and move learners toward a state of communal constructivism. Many pedagogical claims exist regarding the benefits of using wikis. These claims,

however, have rarely been tested empirically. This study used a three-year longitudinal cohort survey design to test the pedagogical claims of wiki when used as an assignment to create an online textbook in a graduate-level course. The overall survey mean for all three years was 2.5 on a four-point scale (2.0=not sure, 3.0=agree), indicating learners were marginally impacted by the wiki writing experience in terms of knowledge construction and enhancing critical thinking skills. Five variables with the highest means were student satisfaction with the wikibook (2.7), building the wikibook enhanced learning outcomes (2.8), student felt more responsible as a result of contributing to the wikibook (2.8), students perceived they were constructing knowledge within a community (2.8), and students critically assessed the information they created (2.9). Results from this study marginally support other researchers' assertions that interactive communication technologies create communally constructivist learning opportunities, resulting in civically engaged, life-long learners. Throughout the study, the course instructor and students learned that collaborative writing does not naturally spring from wiki work, but must be coaxed and nurtured through reward and a self-directed learning approach. While this study provided empirical evidence to test Holmes et al. theory, the sample size was limited and results should not be generalized to other populations.

Key words: wiki, communal constructivism