



2011-2012
Department of
Animal & Food Sciences
Periodic Program Review

Submitted May 2013

Self-Study Checklist for Educational Units

Download template: http://www.uky.edu/IRPE/ie/program_review.html

Internal Self-Study

Background: The self-study document is the primary resource used by the external review team to complete the 2nd phase of the program review process. The better the quality of the self-study the more likely the work of the review team will be productive and yield helpful feedback for the unit.

This checklist is provided as a guideline for items to include in self-study documents. It is intended to be useful to the full range of programs that undergo review on our campus. Further, it reflects the required elements identified in the 2006 revision of AR II-1-0-6 (<http://www.uky.edu/Regs/AR/ar027.pdf>).

This checklist will also be used to identify elements of accreditation reports that are acceptable substitutions for required elements of the self-study.

Submitted for:

Unit Name: Animal and Food Sciences

By: Robert Harmon, Chair

Date: May 16, 2013

Year of Program Review: 2011-2012

Name of Accreditation Agency (if applicable): Institute of Food Technologists

List or describe documents available for review: see below

	Included (✓ or NA)	Page(s)	Other Comments
Executive summary	✓	3	
• Brief account of self-study process	✓	3	
• Committee composition names and affiliation	✓	3	
• List of major recommendations	✓	4-6	
Written Summary Report <i>This narrative report must describe, analyze and synthesize information about the unit. The report should include the components detailed below. Some documents may be tabled features within the text. Others may be featured as appendices. An electronic version of the report and supporting documentation is required for archival purposes.</i>	✓	5-22	
Program Documents	✓	53-243	
• Strategic plan	✓	53-62	
I. Mission Statement	✓	55	
➤ Service Support	✓	60-61	
➤ Instructional Support	✓	56	
➤ Research Support	✓	57	
II. Goals/Objectives	✓	53-62	
III. Criteria for measuring progress	✓	53-62	
• Organization chart/Structure	✓	3-4, 6-10, 24	
• Annual reports (SPRS or other) since the last Self-Study (List years of any missing reports: _____)	✓	92-128	
Resources			
• Budget summary information & adequacy	✓	3, 201	
• Facilities summary information & adequacy	✓	158-164	
• Equipment summary information & adequacy	✓	158-164	

<ul style="list-style-type: none"> • Personnel summary information & adequacy (including faculty & staff numbers & demographics) 	✓	8-10	
<ul style="list-style-type: none"> • Support from other university units essential to effective operations (e.g. research, engagement, development, alumni affairs, human resources, facilities management, financial units, and information technology) 	✓	See Self-Study, Appendix, and External Review Report	
Input from Affected Constituents			
<ul style="list-style-type: none"> • Evaluation data from faculty 	✓	See External Review Report	
<ul style="list-style-type: none"> • Evaluation data from staff 	✓	See External Review Report	
<ul style="list-style-type: none"> • Evaluation data from students 	✓	See External Review Report	
Adherence to Policies and Procedures			
<ul style="list-style-type: none"> • Evidence of adherence to educational policies and procedures established through the faculty governance process (<i>including consistency in applying policies related to grading, probation, & termination</i>) 	✓	Throughout Self-Study	
<ul style="list-style-type: none"> • Evidence of consistent review and monitoring course substitution, course equivalency credits and course transfers toward degree completion 	✓	Throughout Self-Study	
<ul style="list-style-type: none"> • Evidence of adherence to procedures on personnel actions and budget request preparation (established jointly by the unit and the unit head) 	✓	Throughout Self-Study	
Evaluation of Quality and Productivity			
<ul style="list-style-type: none"> • Quality of collegial environment (include climate for equity and diversity) 	✓	59	
<ul style="list-style-type: none"> • Quality & productivity in instruction, research, public service, or operations (<i>include degree program enrollment, student credit hours generated, retention rates, degrees awarded, grant and contract awards, outreach and engagement activities, and operational efficiencies</i>) 	✓	3-4	
<ul style="list-style-type: none"> • Review of Distance Learning course offerings, services and outcomes to ensure compliance 	✓	AFS offers only	

with best practices, SACS policies, and federal rules		ASC 320 via Distance Learning. ASC 320 is approved for DL by the University Senate.	
<ul style="list-style-type: none"> Quality of faculty and staff employees, communications and interactions 	✓	See Self-Study, Appendix, and External Review Report	
<ul style="list-style-type: none"> Quality of orientation, advising and other student service programs 	✓	See Self-Study, Appendix, and External Review Report	
<ul style="list-style-type: none"> Quality of student learning outcomes (go to part 2) 	✓	See Self-Study, Appendix, and External Review Report	
<ul style="list-style-type: none"> Evaluation of course grade distribution by level and rank Identify strategies to monitor grade distribution 	✓	See Self-Study, Appendix, and External Review Report	
Analysis of Strengths and Recommendations for Quality Enhancement			
<ul style="list-style-type: none"> Summary of strengths 	✓	Throughout Self-Study	
<ul style="list-style-type: none"> Recommendations for quality enhancement 	✓	See External Review Report	

Part 2	Included (✓ or NA)	Page(s)	Other Comments
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Student Learning Outcomes (Program Level)			
<ul style="list-style-type: none"> Undergraduate Student Learning Outcomes statements for each degree program offered 	✓	See Appendix IX	
<ul style="list-style-type: none"> Graduate Student Learning Outcomes statements for each degree program offered 	✓	See Appendix IX	
<ul style="list-style-type: none"> Curriculum Map (Course X Objectives Matrix demonstrating alignment of goals with instructional sequences) 	✓	See Appendix IX	
<ul style="list-style-type: none"> Assessment Results 			
<ol style="list-style-type: none"> Implementation plan for all major instructional objectives 	✓	See Appendix IX	
<ol style="list-style-type: none"> Summary of major findings/results 	✓	See Appendix IX	
<ol style="list-style-type: none"> Communications regarding key results 	✓	See Appendix IX	
<ol style="list-style-type: none"> Follow-up action taken 	✓	See Appendix IX	

SELF STUDY
Animal and Food Sciences
2005-2011

College of Agriculture
University of Kentucky

Animal and Food Sciences

Self Study 2005 – 2011

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I. INTRODUCTION AND OVERVIEW

Organization of Self Study Document

This document provides an overview of the Department of Animal and Food Sciences. It includes our mission statement, organization of programs, evidences of productivity and quality, and descriptions of our programs in teaching, research and Extension that address the goals of the University of Kentucky 2009-2014 Strategic Plan (http://www.uky.edu/Provost/strategic_planning/plan.htm) and the 2009-2014 Strategic Plan of the College of Agriculture (<http://www2.ca.uky.edu/deanadmin/coaStrategicPlan2009-2014>). The 2009-2014 Strategic Plan for Animal and Food Sciences is in Appendix I and at: http://www2.ca.uky.edu/deanadmin-files/AFS_Strategic_Plan_2010_FINAL.pdf.

All of our programs address at least one of the five goals in the University of Kentucky and College of Agriculture Strategic Plans.

The Self-Study Committee included:

Luke Boatright, Professor, Animal and Food Sciences
Darrh Bullock, Extension Professor, Animal and Food Sciences
Richard Coffey, Extension Professor, Animal and Food Sciences
Robert Coleman, Associate Extension Professor, Animal and Food Sciences
David Harmon, Professor, Animal and Food Sciences
Robert Harmon, Professor and Chair, Animal and Food Sciences
Bill Silvia, Professor, Animal and Food Sciences
Youling Xiong, Professor, Animal and Food Sciences

Who We Are

The Department of Animal and Food Sciences addresses the major issues faced by animal agriculture today – production efficiency, sustainability, animal welfare, environmental stewardship, food safety and food quality – through our programs in research, instruction and extension. These issues represent challenges and areas for science-based discussions with clientele and consumers. We are involved in multidisciplinary research programs that advance our knowledge of animal biology and production systems and their relationship to the environment, as well as processing, preservation, and improvement of human foods. Our instructional programs focus on the application of science and technology to animal and food production. Our extension programs advance sustainable agricultural and food systems and assist our youth to develop character traits needed to be successful citizens.

Mission

The mission of the Department of Animal and Food Sciences is to: 1) develop, improve, and promote sustainable animal production systems; 2) improve the health and well-being of animals in food and non-food production systems; 3) enhance the quality, utilization and safety of food products; and 4) facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective engagement and technology transfer.

Faculty

The Department of Animal and Food Sciences (AFS) has gone through considerable transition of personnel since 2004, in part because of budget reduction. Dr. Robert Harmon, appointed as chair in 2001, continues as department chair. The department has had 12 faculty vacancies over this time due to retirements (5), deaths (2) or faculty leaving for other positions (5). Seven positions were filled and three were lost to budget cuts. Fortunately one faculty position and one lecturer position were received from the Provost to address instructional responsibilities for the new Equine Science and Management (EQSM) degree program in the College. Two faculty lines were reallocated to staff positions to meet specific program needs; two Extension associates in youth development and an Academic Program Coordinator to serve a major advising and assessment role in addition to instruction. A total of four positions (including the two from the Provost) were reallocated to equine programs in a commitment to the Equine Initiative in the College of Agriculture and the EQSM program. This resulted in a decrease in FTE in dairy and small ruminant programs. In January 2012, three faculty are retiring with each coming back in a post-retirement position.

Currently we have 37 faculty (including lecturer) compared with 40 faculty in 2004 (Table I-1). At this time we have approximately 8.9 FTE instruction (including lecturer), 15.3 FTE research, and 12.8 FTE Extension (Table I-2). In 2004 we had 8.1 FTE instruction, 17.9 FTE research, and 14 FTE Extension. In addition to a decrease in faculty numbers, we have had to shift some responsibility from Extension or research to instruction in order to cover existing courses and courses in EQSM. The department has increased from 4 to 11 adjunct appointments from Kentucky State University, USDA-ARS, or industry in the last seven years. The challenge for the future will be to maintain faculty numbers and fill future vacancies in order to maintain a balance in quality teaching, research and Extension programs.

Program Organization

The department has discipline-oriented research programs in ruminant and non-ruminant nutrition, physiology, animal breeding, management systems, and parasitology/epidemiology using research models in beef cattle, dairy cattle, equine, poultry, sheep and swine (Research Section). The Food Science program compliments activities in the other areas and has an Institute of Food Technologists (IFT)-accredited undergraduate program that last received accreditation in 2010. Active Extension programs exist across the commodity groups and Food Science (Extension Section). In addition to the undergraduate degrees in Animal Science and Food Science, the department is actively engaged in teaching and coordination of the Equine Science and Management degree which was established as a stand-alone degree program in 2007 by the College of Agriculture. Table I-1 lists the specialty areas and ranks of the faculty. Faculty serve in leadership roles in the following positions: Director of Graduate Studies (D. Harmon), Directors of Undergraduate Studies (Silvia, Hicks, Coleman), Extension Coordinator (Bullock), Youth Development Coordinator (Coffey), Commodity Coordinators (with farm or facility oversight; Bullock, Ely, Lawrence, Lindemann, Pescatore, Silvia), Research Coordinator (Xiong), Assessment Coordinator (Vanzant) and Lab Safety Coordinator (Xiong). These leaders serve on the departmental Academic Council and/or Commodity Council in advisory roles to the chair.

Faculty Productivity and Grantsmanship

Despite a decrease in overall faculty numbers in this review period, the departmental faculty have been able to maintain respectable peer-reviewed publication productivity and grantsmanship, in part due to increased emphasis in these areas and an increase in Extension-related grants for program development. A complete list of peer-reviewed publications and grants is in Appendix II and Appendix III

and a summary of productivity is presented in the Research Section. In general, the faculty ranked 2nd or 3rd in the college for total publications each year and the department has the third largest number of research FTE in the college. Faculty have averaged approximately \$4 million in grants per year since 2004-2005 fiscal year

Support Staff

In spite of fiscal constraints, the department has been able to do a fair job of maintaining staff positions and to hire new personnel when vacancies occurred, with intermittent hiring freezes. However, AFS has eliminated two staff support associate positions, one research analyst, and one research farm technician (at the Dairy Unit). The distribution of staff positions across the department is outlined in Table I-3. In response to the downsizing, the department reorganized clerical staff so that the three current staff support associates were assigned specialized responsibilities (e.g. travel, Graduate Program support, poster printing, etc), in addition to clerical support for the five floors in the Garrigus Building. This was a dramatic change from having clerical support on each of the five floors. Plus all faculty now take calls directly into their office and rely on voicemail. Work load in the AFS business office has increased with changes in University business procedures, such that the administrative support associate has taken on some duties shared with the business manager. The department has a need for additional information technology expertise to provide more support for web-based programming and alternative media, but funding has not been available to create a position. In addition, Table I-3 shows a number of grant-funded Extension Associates that have become critical to Extension programs across the department. The eventual loss of ongoing funding for these positions will have dramatic impact on Extension efforts in the future.

Facilities

In general, laboratories are well-equipped and we have been able to add key pieces of research equipment or repair or replace equipment through start-up funds, grants, Research Incentive funds, College Multi-state funds, or partnering with the USDA-ARS unit in the College. The discontinuation of a University Major Research Equipment Grants program raises some concern regarding replacement of major equipment in the future. With the exception of administrative staff computer equipment, all computer replacement or upgrades must be funded from grants and gifts.

From 1999 to 2001, advances in animal research facilities were made with the population of new Intensive Research, Beef, Swine and Sheep facilities at the Animal Research Center in Woodford County. The center was named the C. Oran Little Research Center in June, 2011. This was followed by the construction of a new Feed Mill to serve the animal units within the last five years. The center has provided opportunities for interdisciplinary research with Plant and Soil Sciences and Biosystems and Agricultural Engineering. In addition, the department has a strong partnership with the USDA-ARS Forage Animal Production Research Unit through the administration of internal Specific Cooperative Agreement research grants. The ARS unit has provided for the expansion of research opportunities and expertise in forage-livestock interactions and animal nutrition. An Alltech-UK Nutrition Research Alliance at the Poultry Unit on Coldstream Farm has enhanced research productivity at that unit and has provided for key operational funding. Further, an Alltech-Nutrigenomics Alliance has provided funding for genomics research projects in beef cattle and in horses as well as a number of nutrigenomics symposia that have drawn researchers from around campus. Research enhancements have been made at the West Kentucky Beef Unit in Princeton, KY with the installation of Calan gates in one of the barns and the construction of portable Calan gates that allow research on supplementation of pastured cattle.

In an effort to replace an aging Dairy Research Unit at Coldstream Farm, a partnership was developed with Eastern Kentucky University for a proposed Dairy Research and Education Center at the location of the current ECU Dairy. This proposed center would enhance dairy teaching, research, and outreach capabilities for both institutions. In 2010, considerable grading was completed to divert fresh water from lagoons at the UK Dairy Unit, and modifications in waste management were completed along with downsizing the herd to meet water quality and waste management regulations. Currently UK is working with an industry work group to evaluate all options to replace the UK Dairy, including a partnership with ECU. In recent years, the College has invested funds in the enhancement of the Equine Campus at Maine Chance Farm as part of the Equine Initiative. A new Teaching Pavilion was constructed and an existing barn was renovated for a modern Mare Barn. These enhancements have helped meet research and teaching needs for the Equine Science and Management degree. With an increase in numbers of departmental equine research faculty, more facilities will be needed in the future as these programs mature.

Assessment

Annual Reports of assessment of departmental programs can be found in Appendix IV. Assessment of metrics from the current Strategic Plan is in progress.

The department has held a one-day retreat each year to update faculty on pending issues, set priorities and review progress. In January 2011, a two-day retreat was held with a facilitator to review those values we hold to be important, reinforce the value we place on our outlying research units, establish the need for an Academic Program Coordinator, and reinforce the need for more multi-disciplinary research in addition to commodity-based research. Break-out groups based on years of service provided some valuable insight into the promise for the future.

The department will begin a process of evaluating the undergraduate Animal Science curriculum. Assessment of Learning Outcomes is two years old and beginning to yield data that the department can build upon and utilize for curriculum enhancement. Among the areas of interest are ways to enhance writing and critical thinking skills. Early discussions have begun on the offering of voluntary peer teaching evaluations and initiation of brown bag lunches for the sole purpose of discussing teaching pedagogy and issues.

Animal and Food Sciences Faculty

November 2011

Name	Title	Specialty
Aaron, Debra K	Professor	Statistics, Beef and Sheep Production
Amaral-Phillips, Donna M	Extension Professor	Extension Dairy Nutritionist
Anderson, Leslie Harold	Extension Professor	Beef Extension Specialist
Bewley, Jeffrey M	Assistant Extension Professor	Extension Dairy Systems
Boatright, William L	Professor	Food Chemistry
Boling, James A	Professor	Ruminant Nutrition and Metabolism
Bridges, Phillip J	Assistant Professor	Reproductive Biology
Bullock, Kevin D	Extension Professor	Beef Breeding and Genetics
Burris, Walter R	Extension Professor	Beef Cattle
Camargo, Fernanda C	Assistant Extension Professor	Equine Extension
Cantor, Austin H	Associate Professor	Animal Nutrition / Poultry Science
Coffey, Richard D	Extension Professor	Extension Swine Specialist
Coleman, Robert J	Associate Extension Professor	Extension Horse Specialist
Cromwell, Gary L	Professor	Swine Nutrition
Ely, Donald G	Professor	Ruminant Nutrition
Harmon, David L	Professor	Nutritional Physiology
Harmon, Robert J	Professor, Chair	Mastitis, Lactation Physiology
Heersche Jr., George	Extension Professor	Extension Dairy Specialist
Hennig, Bernhard	Professor	Nutrition and Toxicology
Hicks, Clair L	Professor	Food Science
LaBonty, Elizabeth A	Lecturer	Equine Science
Lawrence, Laurie M	Professor	Equine Nutrition
Lehmkuhler, Jeffrey W	Assistant Extension Professor	Extension Beef Cattle Specialist
Lindemann, Merlin D	Professor	Swine Nutritionist
Matthews, James Clyde	Associate Professor	Beef Cattle Nutritional Physiology
McAllister, Alan J	Extension Professor	Extension Dairy Specialist
McLeod, Kyle R	Associate Professor	Beef Cattle Nutrition
Newman, Melissa C	Associate Professor	Food Microbiology/Safety
O'Leary, Joseph	Associate Extension Professor	Extension Food Safety/Quality
Pescatore, Anthony J	Extension Professor	Poultry Extension
Rentfrow, Gregg K	Assistant Extension Professor	Meat Science Extension
Rossano, Mary G.	Assistant Professor	Equine Epidemiology and Parasitology
Silvia, William J	Professor	Dairy Reproductive Physiology
Suman, Surendranath P	Assistant Professor	Muscle Foods
Urschel, Kristine L	Assistant Professor	Equine Science
Vanzant, Eric S	Associate Professor	Beef Cattle Nutrition
Xiong, Youling	Professor	Protein Chemistry

Animal and Food Sciences Adjunct Faculty

November 2011

Name	Title	Home Institution
Andries, Kenneth	Adjunct Assistant Professor	Kentucky State University
Dawson, Karl	Adjunct Professor	Alltech, Inc.
Flythe, Michael	Adjunct Assistant Professor	USDA-ARS
Klotz, James	Adjunct Assistant Professor	USDA-ARS
Pierce, James	Adjunct Assistant Professor	Alltech, Inc.
Stickland, James	Adjunct Associate Professor	USDA-ARS
Strobel, Herbert	Adjunct Associate Professor	Former faculty; Hallockville Museum Farm
Tidwell, James	Adjunct Assistant Professor	Kentucky State University
Tricarico, Juan	Adjunct Assistant Professor	Alltech, Inc.
Wang, Changzheng	Adjunct Assistant Professor	Kentucky State University
Webster, Carl	Adjunct Assistant Professor	Kentucky State University

Faculty	Teaching	Research	Extension	
Debra Aaron	0.75	0.25		1.00
Donna Amaral-Phillips			1	1.00
Les Anderson	0.11		0.89	1.00
Jeffrey Bewley	0.227		0.773	1.00
Luke Boatright	0.2663	0.7337		1.00
Jim Boling	0.07	0.93		1.00
Phil Bridges	0.233	0.767		1.00
Darrh Bullock	0.1333		0.8667	1.00
Roy Burris			1	1.00
Fernanda Camargo	0.26		0.74	1.00
Austin Cantor	0.41	0.59		1.00
Richard Coffey			1	1.00
Bob Coleman	0.45		0.55	25% Equine Initiative under Instruction 1.00
Gary Cromwell	0	1		1.00
Don Ely	0.4	0.3	0.3	new Extension portion added 1.00
David Harmon	0.233	0.767		20% DGS under Research 1.00
Robert Harmon	0.4	0.44	0.16	30% Admin for Dept Chair 1.00
George Heersche			1	1.00
Bernie Hennig	0.1	0.9		1.00
Clair Hicks	0.502	0.498		1.00
Laurie Lawrence	0.1166	0.8834		1.00
Jeff Lehmkuhler			1	1.00
Merlin Lindemann	0.11	0.89		1.00
Jamie Matthews	0.073	0.927		1.00
Jack McAllister		0.05	0.95	1.00
Kyle McLeod	0.004	0.996		10% IACUC under Research 1.00
Melissa Newman	0.19	0.81		1.00
Joe O'Leary	0.233		0.767	1.00
Anthony Pescatore			1	1.00
Gregg Rentfrow	0.2108		0.7892	1.00
Mary Rossano	0.704	0.296		1.00
William Silvia	0.5014	0.4986		1.00
Surendranath Suman	0.31	0.69		1.00
Kristine Urschel	0.404	0.596		1.00
Eric Vanzant	0.38	0.62		10% Dept Assessment under Instruction 1.00
Youling Xiong	0.08	0.92		1.00
Total FTE:	7.8614	15.3527	12.7859	36.00

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Lecturer

Labonty, Elizabeth 1

No Longer Listed:

Edgerton - retired 6/30/11

Thrift - retired 12/10

Animal and Food Sciences Staff Position List

	Title	Pos #	Unit / Group	Supervisor	Budgeted		
Farms	Research Coordinator	50133213	Beef	Harmon,D	1012003580		State Instruction
	Research Farm Tech III	50107548	Beef	Vanzant	1012530060		State Research
	Research Farm Tech III	50102220	Beef	Vanzant	1012530060		State Research
	Ag Research Specialist	50107558	Beef/Princeton	Burris	1012530060		State Research
	Ag Research Specialist	50109518	Beef	Harmon,D	1012530060 (35%)	2353006000 (65%)	State - Federal Research
	Research Farm Tech II	50110320	Beef/Princeton	Burris	1012530060		State Research
	Research Farm Tech I	50107730	Beef/Princeton	Burris	1012530060		State Research
<i>(eliminated)</i>	Research Farm Tech II	50107555	Dairy	Clark	1012530060		State Research
	Research Farm Tech III	50107554	Dairy	Clark	1012530060		State Research
	Research Farm Tech III	50107549	Dairy	Clark	1012530060		State Research
	Research Facility Manager	50129486	Dairy	Silvia	1012530060 (15%)	2353006000 (85%)	State - Federal Research
	Research Farm Tech II	50109046	Dairy	Clark	2353006000		Federal Research
	Ag Services Manager	50102225	Feed Mill	Cromwell	1012003580		State Instruction
	Research Farm Tech II	50102223	Horse	Lawrence	1012003580		State Instruction
	Ag Research Specialist	50107557	Horse	Lawrence	1012530060		State Research
	Animal Resources Manager	51003150	Horse	Lawrence	1012530060		State Research
	Research Facility Manager	50124507	Meat Lab	Rentfrow	1012003580		State Instruction
	Ag Research Specialist	50109580	Poultry	Cantor/Pescatore	1012530060		State Research
	Research Coordinator	50126491	Sheep	Ely	1012003580		State Instruction
	Ag Research Specialist	50109703	Sheep	Ely	1012530060 (29%)	23530060 (71%)	State - Federal Research
	Research Farm Tech II	50107551	Swine	Monegue	1012530060		State Research
	Ag Research Specialist	50107556	Swine	Lindemann	1012530060 (29%)	2353006000 (71%)	State - Federal Research
	Research Farm Tech II	50109045	Swine	Monegue	2353006000		Federal Research
	Research Farm Tech III	50109945	Swine	Monegue	1012811600		Soft/Grant funds
Technical	Lab Tech Sr.	50125881	Poultry	Cantor/Schillo	1012530060		State Research
	Lab Tech Sr.	50107561	Dairy	Silvia	1012530060		State Research
	Lab Tech Sr.	50107567	Foods	Hicks	1012530060		State Research
	Lab Tech Sr.	50109050	Foods/Horse	Boatright/Lawrence	2353006000		Federal Research
	Lab Tech Sr.	50109053	Beef	McLeod	2353006000		Federal Research
	Lab Tech Sr.	50109054	Foods	Suman	2353006000		Federal Research
	Lab Tech Sr.	50109048	Horse	Urschel/Rossano	2353006000		Federal Research
<i>(vacant)</i>	Lab Tech Sr.	50109047	Beef	Vanzant, E	2353006000		Federal Research
	Research Analyst	50123993	Beef	Matthews	1012530060		State Research
	Research Analyst	50107562	Beef	Matthews	1012530060 (82%)	2358506000 (18%)	State Research - Federal Extension
<i>(eliminated)</i>	Research Analyst	50107051	Foods	Newman	2353006000		Federal Research
	Research Analyst	50109043	Dairy/Horse	Silvia/Lawrence	2353006000		Federal Research

	Research Analyst	50109382	Dairy/Horse	Silvia/Lawrence	2353006000		Federal Research
	Research Analyst	50110553	Swine	Cromwell	2353006000 (85%)	1012811600 (14%)	Federal Research - Soft/Grant funds
	Research Analyst PR	50107565	Beef	Harmon,D	2353006000		Federal Research
	Ag Research Specialist	50109042	Foods	Xiong	2353006000		Federal Research
Extension	Ag Extension Assoc Sr.	51003151	Livestock/Youth	Coffey	1012585060		State Extension
	Ag Extension Assoc Sr.	51003186	Dairy/Youth	Heersche	1012585060		State Extension
	Ag Extension Assoc Sr.	50122136	Horse/4-H	Camargo	1012585060 (7%)	2358506000 (93%)	State - Federal Extension
	Ag Extension Assoc Sr.	50107808	Beef	Burris	1012585060 (5%)	2358506000 (95%)	State - Federal Extension
	Ag Extension Assoc Sr.	50127271	Beef	Anderson	1012812800		Soft/Grant funds
	Ag Extension Assoc Sr.	50128091	Beef	Burris	1012812800	75% FTE	Soft/Grant funds
	Ag Extension Associate	50126042	Beef	Burris	1012812800		Soft/Grant funds
	Ag Extension Associate	51009326	FSIC	Rentfrow	1012811600		Soft/Grant funds
	Ag Ext Program Manager	50129792	Poultry	Pescatore	1012812800		Soft/Grant funds
<i>(vacant)</i>	Ag Extension Specialist	50120542	Goats	Harmon,R	1012585060 (3%)	2358506000 (97%)	State - Federal Extension
	Temp Prof/Non-Admin	50111022		Amaral-Phillips	1012811600		Soft/Grant funds
	Temp Prof/Non-Admin	50111022		Amaral-Phillips	1012811600		Soft/Grant funds
Departmental	Admin Staff Officer I	50107568	Bus Office	Harmon,R	121530060		State Research
	Admin Support Assoc. I	50110235	Bus Office	Harmon,R	1012530060 (83%)	2358506000 (17%)	State Research - Federal Extension
	Account Clerk III	50107543	Bus Office	Hollin	1012530060		State Research
	Staff Support Assoc. I	50107547	Bus Office	Harmon,R	1012530060		State Research
	Staff Support Assoc. I	50109806	Bus Office	Harmon,R	1012003580 (68%)	2358506000 (32%)	State Instruction - Federal Extension
	Staff Support Assoc. I	50107544	Bus Office	Harmon,R	1012530060		State Research
	Computer Support Spec II	50131015	Department	Vanzant, E	1012530060		State Research
	Computer Support Spec II	50109711	Swine/Beef/Dept	Bullock	1012585060		State Extension
	IS Tech Support Asst	50127480		Hennig	1012811600	75% FTE	Soft/Grant funds
	Program Coordinator I	50130055		Hennig	1012811600		Soft/Grant funds
	Research Associate	51010263		Hennig	1012811600		Soft/Grant funds

II. Undergraduate Program

Curriculum Description:

The **Department of Animal and Food Sciences** is the primary academic unit providing instruction and advising to students in three majors: Animal Science (ASC), Food Science (FSC) and Equine Science and Management (EQM). The degree requirements and a complete list of course offerings for each major are described in Appendices V-1 to V-6. For ASC, the degree requirements and course offerings are quite comparable to other land-grant institutions offering a similar major. Students can choose from 3 options: Animal Industry, Food Industry or Pre-Professional. Within the Animal Industry option, students can specialize in equine, dairy or livestock. For FSC, the degree requirements and curriculum satisfy the accreditation standards set by the Institute of Food sciences (IFT). The last IFT accreditation review was conducted in 2010. It is the only food sciences program accredited by IFT in Kentucky. The EQM program is one of only three standalone equine programs at land grant universities; therefore, it is difficult to find suitable comparisons. Students majoring in EQM can choose from 2 options: Equine Science or Equine Management. Students at the University of Kentucky are required to complete a diverse, general education curriculum that is referred to as the UK Core. A brief outline of these requirements is included as Appendix V-7.

Our courses serve students from outside of our three majors. Courses that include a substantial number of students from other majors include ASC 101 (Domestic Animal Biology), FSC 107 (Introduction to Food Science), NFS 311 (Nutritional Biochemistry), ASC 320-201 (Equine Management, on line), ASC 382 (Animal Production Principles), FSC 530 (Food Microbiology) and GEN 300-008 (Wildlife Biology and Management Principals). Several of our faculty teach courses that are listed outside of our three majors. During the review period, this includes several sections of GEN 100 and GEN 200. Several faculty have developed new courses that have been taught as sections of GEN 300. As noted above, one of our faculty is the primary instructor for NFS 311 (nutritional biochemistry).

Utilization of Information Technology

The UK College of Agriculture has done a reasonably good job of maintaining classroom facilities so that modern information technologies can be utilized in most classrooms. The University of Kentucky has adopted Blackboard as its primary instructional platform, facilitating the distribution of course materials, testing and grading. The department currently offers two courses on-line. Individual instructors are utilizing a wide variety of web based and other technology based instructional tools. As described in more detail below, web-based modules for the ASC 101 course are currently being developed as part of a USDA Higher Education Challenge Grant.

Unique Aspects of the Curriculum:

As in most institutions offering similar degree programs, much of the instructional activity occurs in a traditional classroom setting through lecture. However, all three majors offered through our department emphasize experiential learning in a variety of ways. There is a strong commitment to hands-on laboratory activities, including animal handling and management, animal and organ systems examination and dissection, food product preparation, chemical analysis of food and feeds, microbiology, use of computer analytical techniques, software, etc. A heavy emphasis is placed on getting students into the field through field trips. Hands-on learning and field trips were recognized as a point for future emphasis in an internal review of the ASC curriculum in 2002-3. Resulting revisions to

the curriculum were implemented beginning in 2004. Beyond formal course requirements, experiential learning is encouraged. Students have a diverse array of opportunities for employment within the department. Each of the production units hires student workers to assist with both research and animal husbandry. Students are also hired by individual researchers to work at the farms or in the laboratory. We currently have 34 undergraduate students working at the farms and 6 working in labs. Student internships are a requirement in the EQM major. Thirty-eight FSC students completed internships during the period from 2007-2009. Study abroad is also encouraged. Two animal science-based, summer study abroad programs were offered in 2009 and 2010. Ten students participated in these trips. We hope to expand this aspect of our curriculum in the future. Undergraduate research is encouraged. Departmental faculty mentored 26 students in ASC 395 and FSC 395 (Special problems in Animal Science and Food Science respectively) in 2010-2011. This is typical. Our faculty also mentor student research projects through ABT (Agricultural Biotechnology) 395. We have developed extensive undergraduate student, peer mentor programs in ASC 101 and EQM 105. Successful students from previous years are recruited to provide instructional assistance to students currently enrolled in these two courses. At least 15 undergraduates have served as peer mentors each year for the past 5 years. Student mentors receive credit through GEN 300. The Animal and Food Sciences Department is the home for four student judging teams: Livestock, Dairy Cattle, Meats and Horses. Faculty from our department are currently or have been the primary advisors to the UK Equestrian, Dressage and Saddle Seat teams. Numerous student clubs and organizations are advised by our faculty including the Dairy Club, Block and Bridle Club, Food Science Club, Alpha Zeta and 1 UKSPCA.

Effectiveness of the Undergraduate Teaching Program

One measure of effectiveness is to examine enrollment. Enrollment data for all three majors is included in Appendix V-8. Currently 466 students are enrolled, representing a 43% increase from the 2005-2006 academic year. The vast majority of this increase is due to the introduction of the EQM major. A similar trend in increasing numbers can be seen in student contact hours (Appendix V-9).

Another measure of effectiveness is student evaluations of teaching. Student evaluations of courses and teaching are consistently comparable or better than the college averages in all three majors (Appendix V-10).

In the last three years, the Department of Animal and Food Sciences has made a concerted effort to develop tools to evaluate the effectiveness of our instruction. The department has identified five major learning objectives that apply to all three majors. These are:

1. Students will demonstrate knowledge of scientific principles and the application of those principles to animal and food production systems.
2. Students will formulate and coherently support positions using written, oral, and visual communication skills.
3. Students will recognize and respect diverse viewpoints when deriving solutions to challenges related to animal and food systems.
4. Students will effectively acquire, assimilate, analyze and report scientific information.
5. Students will demonstrate the ability to work effectively in team environments

We are actively engaged in developing appropriate means for assessing the effectiveness of our programs in these critical areas. For example, a comprehensive test that broadly covers subject material

within animal sciences is now given to students in ASC 101 and in ASC 470 (capstone course) to assess learning objective 1. In a similar manner, the California Critical Thinking Skills Test (CCTST) is administered to both groups of students. This test is not discipline specific. It is designed to evaluate student skills in analysis, inference, evaluation, deductive reasoning and inductive reasoning. This test is being used to assess instructional effectiveness in learning area 4. Both the internally developed knowledge test and the CCTST were used for the first time in 2010. Senior level students scored significantly higher in both tests. As students progress through our program, we will be able to assess progress on the same individuals over time. A similar approach is being instituted for students in the EQM major. All of these students take the CCTST in ASC 101 and will take it again in EQM 490 (capstone) beginning in 2011. The writing, oral and visual communication skills (learning objective 2) as well as ability to work in teams (learning objective 5) are evaluated in the capstone courses (ASC 470, EQM 490). Another test, the California Critical Thinking Dispositions Inventory, has been administered to the students in ASC 470 to evaluate learning object 3. The FSC program surveyed its graduates in 2009 and has another survey currently underway. This has proven to be a very effective way of assessing the effectiveness of the FSC undergraduate program. Both ASC and EQM majors are in the early phase of developing a similar survey of their graduates. The department has been commended by college level administrators for our efforts in this critical area. Two abstracts describing these efforts have been presented at national meetings. It is our intention to publish these data in a teaching focused journal.

Notable Accomplishments

The Department of Animal and Food Sciences has been recognized consistently for excellence in teaching at both the college and university levels. Teaching award winners during the review period include:

2011 - Jeffrey Bewley- College of Agriculture Student Council Early Career Outstanding Teacher Award
2010 - William Silvia-Gamma Sigma Delta Master Teacher Award
2009 - William Silvia-UK Alumni Association Great Teacher Award
2008 - Robert Coleman- Gamma Sigma Delta Master Teacher Award
2007 - Keith Schillo- Gamma Sigma Delta Master Teacher Award

The most notable accomplishment made during the review period was the development of the major in Equine Sciences. The major was approved by the faculty senate in 2009. This was a part of the college's Equine Initiative. We have 6 faculty contributing to instruction in this major, more than any other department in the college. Five new courses were developed and three others were extensively revised as part of this effort. The success of this program is well documented in enrollment figures. Over 60% of the EQM students are from out-of-state.

Another notable accomplishment has been the continued implementation of the revised ASC curriculum plan developed in 2003. Implementation began in 2004 and was completed in the first part of the review period. This included major revisions to the introductory course sequence (ASC 101 and 102), reproductive physiology (ASC 364) and nutrition courses (ASC 378) and the development of a careers course (ASC 205) and a livestock physiology course (ASC 325).

Drs. Rossano, Silvia and Harmon are co principle investigators on a USDA Higher Education Challenge Grant. This is a collaborative effort between UK and Purdue University. Dr. Bryan Hains (Community and Leadership Development) is the lead researcher at UK. The objective of the grant is to develop on line support materials for particularly difficult concepts in introductory courses in the agricultural

sciences. The group at Purdue identified our ASC program for collaboration because of its reputation for instruction with a scientific emphasis. The key concept identified for instructional support is the difference in digestion and utilization of major nutrients between ruminant and nonruminant animals.

As noted above, the department has made a concerted effort to develop effective tools to assess our undergraduate instructional programs. Our efforts in the area of assessment have been recognized as a model by college level administrators.

Major Limitations

Each program faces different issues. Enrollment in the ASC major appears to have stabilized at about 200-250 students. This is taxing the advising and instructional capabilities of the current faculty. We currently have 8.9FTEs in teaching (Appendix V-11). This represents a decrease of 20% from the recent peak of 10.99 FTEs in 2009-2010. This is due primarily from recent retirements of faculty whose appointment included a large percentage of effort devoted to teaching. There are currently 209 students in the EQM major and the trend is for it to increase. There is no way to estimate how much more it could grow. Again, this adds an increasing burden on the existing faculty. The major resource limiting growth is the availability of instructor time, both at the faculty and TA levels. Another major issue is the availability of 'smart' classrooms and appropriate laboratory space to accommodate the increased enrollment. In contrast, the major limitation facing the FSC major is the low enrollment. This has been an ongoing concern, despite the high demand for graduates in the workplace. The enrollment figures are typical for programs with 12 or fewer faculty members.

III. UNDERGRADUATE FOOD SCIENCE EDUCATION

The scope of this section is limited to the undergraduate program. The food science research, graduate education and extension components are addressed in other sections of this document.

The Department of Animal and Food Sciences offers an undergraduate degree in Food Science within the College of Agriculture. The degree requirements are described at: <http://www.uky.edu/Registrar/Major-Sheets/MSCurrent/agr/fosc.pdf>. The individual course descriptions can be found at <http://www.uky.edu/Registrar/bulletinCurrent/courses/FSC.pdf>.

The University of Kentucky is home to the only nationally accredited food science program in the state. The most recent accreditation was obtained in May 2010 (**Appendix VI-A**) from the Institute of Food Technologists (IFT) (a national organization that reviews all major food science programs in the U.S.).

There are currently 29 undergraduates enrolled in our Food Science program. Two additional undergraduates are being advised by our food science faculty, but currently enrolled in the Bluegrass Community and Technical College. The average undergraduate enrollment since 2005 is 23 (IRPE, 2011). There are 8 food science professors involved in teaching the core undergraduate food science courses (approximately 2.0 “Full Time Equivalents” teaching).

Our food science graduates have had exceptional success in occupational placements. The average national starting salary for food sciences with a B.S. degree is about \$50,000 per year (Food Technology, Feb. 2010).

Food manufacturing is the third largest industrial sector in Kentucky (after transportation and industrial manufacturing) with a gross state product of about \$4 billion. Our undergraduate food science curriculum provides direct connections with regional food companies, which promote hands-on learning and critical thinking. The department has established internships with several types of local industry. Those goals are also realized in two courses: Experimental Learning in Food Sciences (FSC 399), and our Advanced Food Science capstone class (FSC 536). The latter class was recognized, at the 2001 IFT Annual Meeting on Food Science Education, as an outstanding model for incorporating real industry into the curriculum. (Hick, CL, 2001. IFT Annual Meeting Abstract 73A-4). Utilizing guest lecturers and touring facilities exposes students to a wide range of actual environments. And by soliciting input from professionals, current trends and needs can be explored both in the classroom and laboratory practicums.

Research, funded by competitive grants, not only exposes undergraduate students to cutting-edge technology, but also provides funding for analytical instruments, which are often not funded by any other means. Research programs also provide students with professors who are well versed in current technology and current trends in the industrial, governmental and academic sectors, which will later provide employment.

A recent national survey of undergraduate enrollments in IFT-accredited food science programs (Food Technology, 2011), and corresponding faculty numbers observed that only three food science programs in the U.S. have fewer faculty members than the University of Kentucky (**Appendix VI-B**). Food Science programs with 12 or less faculty members averaged about 26

students. Larger programs, with 75 or more undergraduates, averaged about 29 faculty members.

It should also be noted that the “Introduction to Food Science” and “Food Microbiology” courses have had increasing numbers of students from several other disciplines.

Our food science faculty continues to work toward expanding awareness of the opportunities available in the food science field by interaction with regional high school programs. This includes participation in the newly-created Kentucky Department of Education’s High School Food Science Program; both at the administrative level and by connecting with high school teachers and classes. Awards, recognitions and accomplishments for our food science faculty relating to undergraduate education can be found in the faculty member’s curriculum vitae (**Appendix VIII**).

Appendix VI-C provides summaries of recent assessments to our curriculum, and an overview of the modifications made as a result of these assessments.

References:

Food Technology, Feb 2010, p. 2009 IFT Membership Employment & Salary Survey, February 2010, Volume 64, No.2 (Accessed online July 22, 2011).

Hicks, C. L. 2001. Use of corporate research and development personnel to enhance student learning opportunities. Page 170 (Abst. 73A-4) in 2001 Inst. Food Technol. Annual Meeting Book of Abstracts. Chicago, IL.

IRPE - University of Kentucky Enrollment by College and Major, accessed at <http://www.uky.edu/IRPE/students/enrollment/college/deglev.f0110.01AG.shtml> on July 29, 2011.

IV. GRADUATE EDUCATION

The Department of Animal & Food Sciences (A&FS) offers graduate work leading to the Master of Science (Plan A -- Thesis and Plan B -- Non-thesis) and the Doctor of Philosophy degrees. A graduate student handbook has been developed, is updated yearly, and is available on the department's website (<http://www.uky.edu/Ag/AnimalSciences/grad/gradhandb.pdf>).

Individual graduate programs are planned by students in consultation with their advisor and advisory committee, and the Director of Graduate Studies. Study and research are available in various areas of the animal and food sciences. Animal species include beef, dairy, equine, poultry, sheep and swine. Within each species there are programs related to nutrition (all species), reproductive physiology (beef and dairy), and systems management (dairy, beef and equine). The foods area offers programs in dairy chemistry, food/lipid chemistry, food microbiology/safety, meats and protein chemistry.

Admission Requirements

Admission to the Graduate program in A&FS follows the requirements of the Graduate School. Animal & Food Sciences has no unique program requirements. All admission decisions are made by individual faculty who choose their own students. Conversely, no students are accepted into the program without the request of a faculty who is willing to serve as major professor.

The minimum Graduate School requirements are as follows:

•A baccalaureate degree from a fully accredited institution of higher learning. An overall grade point average of 2.75 on undergraduate work and 3.00 on all graduate work is required by the Graduate School.

Students must submit scores on the verbal, quantitative and analytical writing portions of the Graduate Record Examination (GRE). We have no minimum GRE score requirement; rather these data are used for individual decision making. International applicants whose native language is not English must submit either a TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing System) score. The University of Kentucky requires a minimum TOEFL score of 550 (paper-based), 213 (computer-based) or 79 (internet-based). For IELTS, a minimum mean band score of 6.5 is required.

Degree Requirements

The **Master of Science (M.S.)** degree in Animal and Food Sciences requires:

- \$ Successful completion of ASC 771 (Animal Science Seminar)
- \$ at least 24 credit hours of course work with at least 2/3 of the course work in regular classes (not special project, independent study, etc.) and at least 12 hours must be at the 600 or 700 level (excluding thesis credit)
- \$ a minimum 3.0 grade point average for all course work
- \$ Successful completion of a final exam*
- \$ Submission of an approved thesis** to the Graduate School

* The final exam includes presentation of the thesis research and is scheduled after the thesis is complete.

** Under unusual circumstances the Department of Animal and Food Sciences may agree to waive the requirement for a thesis by substituting additional course work or other requirements.

Doctor of Philosophy (Ph.D.)

According to the Graduate School, the Ph.D. degree represents “documentation of independent and comprehensive scholarship in a specific field. Such scholarship must be manifested by both the student’s mastery of subject matter and capacity to do research.” During the student’s first or second semester, they should consult with their advisor concerning the selection of an Advisory Committee (minimum of 4 members: advisor is chair and one member must be outside the department). The Advisory Committee serves to assist the student in selection of courses, design of experiments, development of techniques and preparation of the dissertation. The Advisory Committee also administers the Qualifying Exam and the Final Exam (see below).

The Ph.D degree in Animal and Food Sciences requires:

An awarded master’s degree from the University of Kentucky or from another accredited school may satisfy 18 of the 36 hour requirement.

- \$ Successful completion of ASC 771 (Animal Science Seminar)
- \$ A minimum 3.0 grade point average on all course work
- \$ Successful completion of the Qualifying Exam**
- \$ Successful completion and defense of the Ph.D. dissertation in the Final Exam***
- \$ Submission of the approved dissertation to the Graduate School

**The Qualifying Exam determines that the student has sufficient mastery of the subject matter in their field. The Qualifying Exam is usually scheduled after the second

year of a student's program. The format of the Qualifying Exam is determined by the Advisory Committee and may have written and oral components.

***The Final Exam includes defense of the dissertation and any other components determined to be appropriate by the Advisory Committee.

Detailed information on the graduate program in Animal & Food Sciences can be found at: <http://www.research.uky.edu/gsbulletin/bullinfo.shtml>

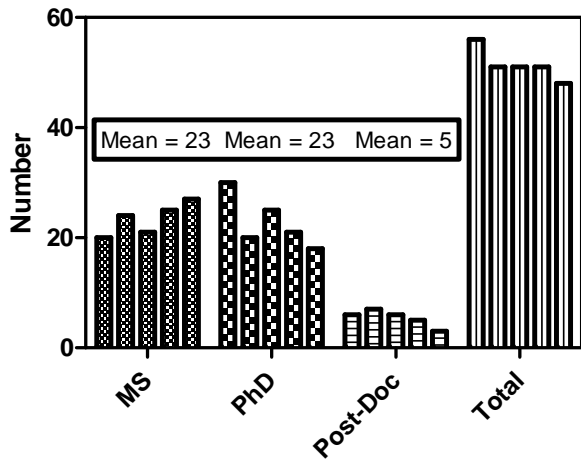
Departmental Facilities

Modern computer and laboratory facilities are available to support graduate student research projects in the Department of Animal & Food Sciences. A broad array of equipment is available to complement studies in nutrition, physiology and molecular biology. The University has an advanced genomics technology center and proteomics and micro-array facilities that are available for use. In addition, faculty and students at the University have access to multiple research farms for animal studies along with intensive animal facilities on campus in the basement of the W.P. Garrigus building and at the Oran Little Research Center in Woodford County and Maine Chance Farm in Fayette County.

Assessment of Graduate Education

The Department of Animal & Food Sciences graduate program at the University of Kentucky has long been a strength of the department. For the past five years (2006-2010) the department has averaged 51 total students (Figure 1) comprised of 23 M.S., 23 Ph.D. and 5 post-docs. Typically approximately 40 of these students receive some type of assistantship support comprised of combinations of departmental (partial \$7,000 assistantships with the exception of new faculty and 2 TA's) and grant funds. The

Figure 1. Graduate Students Enrolled 2006-2010



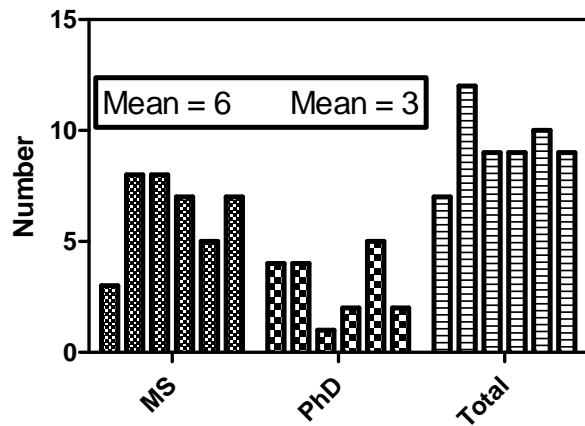
Animal & Food Sciences Graduate Enrollment

department receives 2 allocated fellowships from the graduate school that are awarded within the department and A&FS has averaged an additional two-three fellowships (competitive academic fellowships and minority) from the graduate school per year.

During the past five years the department has averaged six M.S. and three Ph.D. student graduations per year. This compares to averages of 64 M.S. and 25 Ph.D. graduating yearly in the College of Agriculture and is indicative of A&FS contribution to the total graduate students in the college.

Based upon the Graduate Records Exam (GRE) report compiled by the graduate school students in AFS are representative of those in the College of

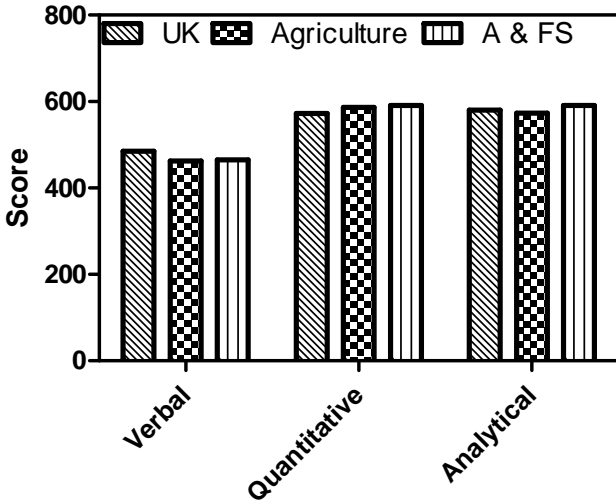
Figure 2. Graduate Students Completed 2006-2011



Animal & Food Sciences Graduate Degrees

Agriculture and the university as a whole (Figure 3). Students in Agriculture and AFS tend to have lower verbal scores but higher analytical and quantitative scores.

Figure 3. Average GRE Scores 2003-2009



Mean GRE Scores for UK, College and Department

One of the goals of the strategic plan of the University of Kentucky is to increase graduate student publications and presentations and is one of the key areas of assessment of graduate programs. In this area A&FS is one of the leading programs at UK consistently ranking one or two in the College of Agriculture averaging 23% of the college publications and presentations while having about 10% of the graduate students in the college (Figure 4). In comparison the College of Agriculture typically ranks first, second or third in number of publications and presentations by colleges at UK sharing this honor along with the Colleges of Arts and Sciences and Engineering.

The Department of Animal & Food Sciences at the University of Kentucky has a long history of excellence in graduate education. It has been both a focus and a strength of the department.

Figure 4. Graduate Students Productivity 2006-2009

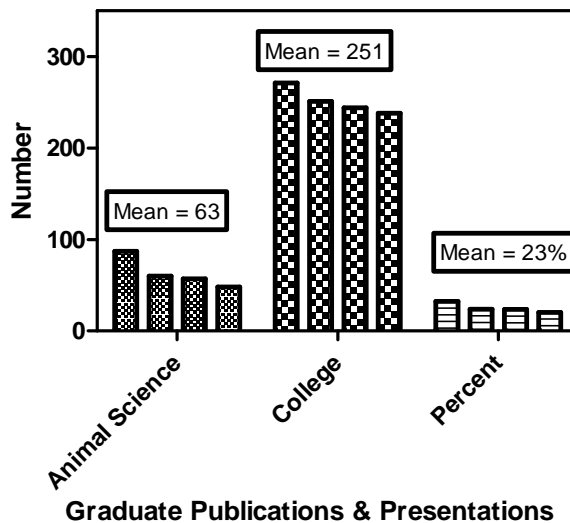
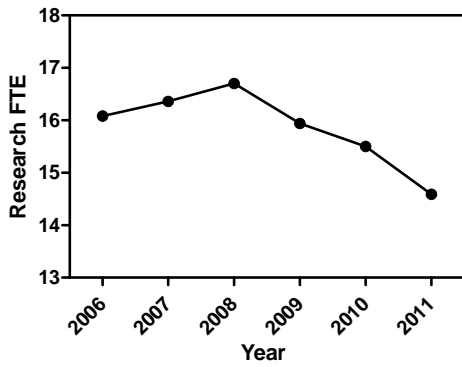


Figure 5. A & FS Research Appointments



meetings per FTE per year.

Current trends for declining students numbers and doctoral students (Figure 1) and research FTE in the department (Figure 5) may jeopardize the success of this status in the long term.

Currently we have approximately 3.5 graduate students or post-docs per FTE producing 4.3 publications or presentations at scientific

V. RESEARCH PROGRAM

1. Introduction

Animal agriculture and food technology continue to evolve in the domestic as well as the global markets as the expectations of producers, processors, and consumers change. Issues such as the impact of animal production on the environment and economy, human nutrition, and food quality and safety have become more prominent today than ever, which offers both challenges and opportunities for scientific researchers. The land-grant mission of the Department of Animal and Food Sciences (AFS) at UK encourages truly creative research endeavors that address national needs.

The AFS's research activities in the past five years have focused on acquiring fundamental knowledge and discoveries related to animal biology and management, animal and human nutrition, and processing of food products to ensure quality, safety, and security. Emphases are placed on multidisciplinary and system-based research. The Department's comprehensive research program in these areas has been nationally competitive and productive in the past five years, which is evidenced by the \$19.5 M extramural grants (as PI) received, 235 peer-reviewed journal articles published, and 47 Ph.D. and M.S. students completed. In addition, 10 research faculty have received a total of 18 major awards, including national and international awards and prizes. These accomplishments place the AFS research amongst the top research programs in the college in both productivity and quality.

2. Program Personnel

The AFS department currently has 37 faculty members on payroll, of which 23 have a research appointment with DOE ranging from 5% to 100%. Over the past five years, the total research full-time-equivalent (FTE) is always less than 17; the average research FTE is 15.63 (Table V-1, Table V-2). During this period, AFS actually lost one research position (0.86 FTE) from the ruminant microbiology discipline (H. Strobel) and the funding from a beef cattle genetics position (F. Thrift). The animal physiology position vacated by K. Schillo was filled by Phil Bridges (reproductive physiology). In the same period, two new equine nutrition/physiology research positions (0.9 FTE) were created as a result of the College of Agriculture's initiative to expand equine science (K. Urschel, M. Rossano). Hence, the FTE lines have stayed relatively unchanged. (This is in contrast with faculty lines in extension where one vacancy resulting from a retirement has been converted to non-faculty extension associate positions.)

Research technical support positions (currently 41, equally spread on main campus and in the animal farm units) remained about the same as the last review period (Table V-1). The number of graduate students and postdoctoral associates also remained about the same as the last review period (Table V-1). These nonfaculty researchers have played a critical role in the overall productivity of the departmental research program.

Table V-1 – Animal and Food Sciences Research Personnel (2009-2010)

Category	Garrigus Bldg.	Animal Units	Total
Research faculty (FTE)	14.83	0	14.83
Faculty total:	14.83	0	14.83
Research staff			
• Research specialist	1	5	6
• Research facility manager	1	1	2
• Animal resource manager	0	1	1
• Research coordinator	0	2	2
• Ag service manager	0	1	1
• Research analyst principal	1	0	1
• Research analyst	7	0	7
• Lab technician senior	8	0	8
• Research farm technician	0	11	11
• Computer support specialist	2	0	2
Research staff total:	20	21	41
Postdoctoral researcher & graduate student			
• Postdoctoral researcher	5	0	5
• PhD student	28	0	28
• MS student	24	0	24
Graduate & postdoc total:	55	0	55

3. Research Emphases

a. Research by disciplines

Research in AFS in the past 5 years has focused on two main areas: the elucidation of fundamental mechanisms that regulate the growth, development, nutrition, and health of animals; and molecular and biological interactions that control the quality and safety of food products. One of the main thrusts of the research is to integrate animal nutrition studies into different aspects of the end products – food quality and safety and human nutrition/health. The animal science research falls into three main disciplines: nutrition, physiology, and genetics, while the food science research is comprised of two main aspects: food quality and food safety. In addition, we have a growing program in animal systems (primarily dairy). Many of the research activities are collaborative and cross different disciplines from both within the department and outside the department, college, and university.

A core program that interfaces animal **nutrition** and **physiology** (including reproduction), which cuts across all animal species (bovine, swine, ovine, avian, and equine), utilizes nutrigenomics, metabolomics, and proteomics as robust tools to study nutrient metabolism and transport in various parts of the animal body and how animal physiology is affected by different production factors. The animal science research is integrated into food science research with the results being applied to the understanding of impacts of production factors on the quality and nutrition of meat, dairy, and egg products. Strong industry alliances, particularly with Alltech through the Alltech-UK Animal Nutrigenomics Alliance and the Alltech-UK Animal Nutrition

Alliance, have proven to be extremely fruitful. Another active collaboration exists between researchers in the department and scientists in the USDA-ARS Forage Animal Production Research Unit. These efforts focus on optimizing the forage-animal interface to enhance the animal production in forage-based enterprises. Animal **genetics** research continues to be an important part of the animal science research program. Cross-breeding and genetic improvements in dairy cattle, beef cattle, sheep, and swine are studied in the broad context of growth performance and product yield and quality traits.

As the primary constituent of the departmental overall farm-to-table research initiative and a core program, **Food Science** research plays a critical role in generating scientific results to help value-added food processing businesses in the State as well as serves to validate animal nutrition, physiology, and genetics research. In the past 5 years, the food science research has emphasized both basic and applied approaches to the investigation of physical, chemical, and biological mechanisms controlling quality, nutrition, and safety of fresh and processed foods. Particular emphases have been placed on oxidation and anti-oxidation as related to the color of fresh meat and protein functionality in processed muscle foods; impacts of feed nutrients on palatability of beef, pork, and chicken; use of natural antimicrobials to mitigate pathogens and other biological threats in food; engineering endeavors to predict milk protein coagulation in cheese making and phage control; identifying radical-mediated pathways for off-flavor generation in soy food products; nutrient intervention for the protection of endothelial tissues of humans. The unique structure of the AFS provides the opportunity to carry out some of the human nutrition studies using animal models, organs, and tissues.

A notable initiative that was launched during this 5-year period is the Food System Innovation Center (FSIC) that is strongly supported by extramural funds, including the Kentucky Agricultural Development Board through the Kentucky Governor's Office of Agriculture Policy. The FSIC brings together researchers and extension specialists in the college and university, including faculty from food science, nutrition, animal science, agricultural economics, and marketing. The center serves as a platform to promote interactions with the food industry through extension, teaching, and applied research and addresses current issues on processing, safety and economy of both animal- and plant-derived foods.

b. Individual research units

While a disciplinary approach is most conducive to the scientific exploration of animal nutrition and health, some unique aspects of each animal species entail commodity-based approaches. Hence, the animal nutrition study in AFS is sub-divided into ruminant and non-ruminant species. Ruminant research encompasses beef cattle, dairy cows and sheep, and non-ruminant research includes swine, poultry, and horses. **Beef cattle** research emphasizes identifying relationships between nutrient digestion, gut metabolism, and nutrient absorption, and the molecular mechanism regulating these processes. Utilization of forages and sustainable grazing practices are also a focus of this program. The impact of management strategies on health and economics of production and quality of the final product (beef) is also included. **Dairy cattle** research emphasizes physiology, reproduction, and health of cows, animal genetics and breeding, and the relationship between dietary nutrients and nutritional quality of milk and milk products. **Swine research** emphasizes dietary factors (macro and micronutrients, antibiotics, enzymes) and genetics as related to growth and development, diet digestibility, feed efficiency, immunocompetence, and quality (e.g., carcass leanness, color scores and stability) of pork, as well as prenatal and early postnatal development. **Poultry research** emphasizes the understanding

of the impact of feed ingredients on growth and production, yields, and product (meat) chemical composition. Examples of feed ingredients are dried distillers grains and solubles, pearl millet, organic minerals (selenium), and enzymes. Much of the work is conducted at the Coldstream Poultry Farm, a part of the Alltech-UK Animal Nutrition Alliance. Sheep research emphasizes the basic principles of diet utilization for maintenance, reproduction, lactation, and growth functions. Dietary variations in concentrate to roughage ratios, in combination with feed additives, alternative feed sources, and processing methods, are evaluated for support of productive animal functions. In addition, performance parameters have been evaluated in studies to grade-up to hair sheep genetics in a low-input production system. Equine research emphasizes nutrient requirements of broodmares, foals, exercising horses, as well as aging horses, digestive physiology, pasture and forage utilization, and nutrient metabolism (amino acids, proteins, micronutrients, etc.).

4. Productivity and Impacts

a. Funding

Research in the AFS department has consistently been well funded by extramural sources. A total of \$19.5 M as PI or \$31.6 M as PI and Co-PI combined grants were received during 2005-2010, placing the AFS in the 1st or 2nd place (out of 14 departments) in the college in any given year. Grant awards averaged \$268,152 (PI) or \$403,869 (PI+Co-PI) per research FTE per year (Table V-2) in the past 5 years, which is also among the leaders in the college in that category. A large percentage (>61.7%) of the funds received are from highly competitive federal sources, including National Institute of Health (NIH), USDA National Research Initiative (NRI) or National Institute of Food and Agriculture (NIFA), and National Institute of Hometown Security (NIHS). This sustained level of successes is a clear indication of national competitiveness and high quality of our AFS research program.

b. Productivity

The AFS research has produced a total of 235 research publications in peer-reviewed scientific journals and books with an average of 47 papers per annum (Table V-3). Of particular notice is the rise in the total number of journal publications despite the slight decline in research faculty FTE in the past few years. From 2005 to 2010, the total number of refereed papers per research FTE has risen from 2.73 to 4.38. In the last 2 years, per research FTE in AFS has published more than an average research faculty member did in the college, i.e., 3.92 and 4.38 papers for AFS compared with 3.30 and 3.14 papers for the college average (Table V-3). The great majority of these AFS papers are published in top-tier journals in animal science, nutritional science, and food science. Research faculty have also contributed about 5 book chapters every year.

In addition, during 2005-2010, AFS graduated a total of 34 M.S. and 13 Ph.D. students (source: <http://www.uky.edu/IRPE/welcome.html>; College Metrics Sheet) and trained about 5 postdoctoral researchers per year. (Note: during 2010-2011, 7 Ph.D. were completed). More than 15 international visiting scholars have visited our department to conduct short or long-term collaborative research or receive training, indicating international recognition and strength of the AFS research program.

Table V-2 – Research Proposals and Grants (Sponsored Projects Awards Through UKRF)

Items	2005-06	2006-07	2007-08	2008-09	2009-10	Total 2005-10	2010-11
Research FTE	15.03	15.92	16.02	16.33	14.83	Ave: 15.63	15.90
# Proposals submitted (PI)	19	18	15	22	27	101	25
# Proposals funded (PI)	15	14	13	17	18	67	22
Awards as PI	3,406,002	4,546,124	4,059,833	3,285,677	4,206,433	\$19,504,069	4,754,157
Awards as Co-PI	3,042,761	4,142,499	1,961,829	1,800,137	1,111,072	\$12,058,298	827,239
Total awards	6,448,763	8,688,623	6,021,662	5,085,814	5,317,505	\$31,562,667	5,581,396
% Federal competitive	56.1%	53.7%	77.6%	38.2%	82.8%	Ave: 61.7%	75.9%
Awards per research FTE (PI)	302,470	255,027	205,098	257,589	320,577	Ave: \$268,152	298,994
Total PI awards college rank	2 nd	1 st	2 nd	1 st	2 nd	1.6 th	N/A

Table V-3 – Research Publications

Items	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	Total 2005-10	2010-2011
Research FTE	15.03	15.92	16.02	16.33	14.83	Ave: 15.63	15.90
¹ Total journal articles	33 (0)	31 (0)	48 (52)	58 (59)	52 (60)	235	N/A
Book chapters	8	3	6	5	5	27	N/A
Total pub per research FTE	2.73	2.14	3.62	3.92	4.38	Ave: 3.36	N/A
<i>Total pub per research FTE (College)</i>	<i>313/114 =2.75</i>	<i>380/117= 3.25</i>	<i>407/118= 3.45</i>	<i>396/120= 3.30</i>	<i>377/120= 3.14</i>	<i>Ave: 3.18</i>	<i>N/A</i>
Patents	2	0	0	0	1	3	N/A
Genbank	0	6	5	4	5	20	N/A

¹<http://www2.ca.uky.edu/deanadmin/fa/deptrpt>

Numbers in parentheses include AFS and non-AFS papers (KAES Annual Reports).

c. Faculty research awards

As an indication of the quality and productivity of research, during 2005-2010, ten out of the 23 research faculty in AFS received a combined 18 major recognitions for their respective professional achievements in animal and food science research (Note: this does not include AFS

faculty who do not have a research appointment but have also received awards). These awards, listed below, include college, university, regional, national, and international level awards. Again, these are awards to faculty whose DOE have a research component.

- 3 Elected Fellow of ASAS
- 1 Elected Fellow of IFT
- 1 Midwest ASAS/ADSA Outstanding Young Researcher Award
- 1 George Fleming Prize
- 1 International Meat Secretariat Prize for Meat Science & Technology
- 1 FASS New Frontiers Award
- 3 COA Thomas Poe Cooper Research Award
- 1 COA Grantsmanship Award
- 1 Best JACN Scientific Research Paper Award
- 1 ASAS Animal Management Award
- 1 ASAS Equine Science Award
- 2 Fulbright Scholar
- 1 University Research Professor

Total = 18

5. Lab Space, Equipment, and Farm Facilities

a. Lab space in Garrigus

The AFS department has a total of 28 lab spaces in the Garrigus Building, which include regular labs and small, storage or preparatory rooms ([Appendix VII-1](#)). These labs are located on 2nd, 4th, 6th, and 8th floors (note: odd-number floors are for non-AFS faculty). Currently, the lab spaces are distributed mostly by commodity or animal species, and there have been proposals to re-distribute research faculty by discipline. Nonetheless, the current physical structure, perceived to be not most efficient, does not seem to have a major negative impact on the collaboration between PIs and certainly does not seem to impair the productivity of the individual units by discipline or by commodity.

The Sensory Evaluation Lab located on the 2nd floor has recently been renovated. This lab has provided critical support for research on food science and animal science (beef, swine and poultry units) and the FSIC. In addition, the basement contains a Meat Lab and a general Food Processing Pilot Plant (used to be exclusively for dairy processing). The Meat Lab has both the slaughter facilities and meat processing facilities required for carrying out fresh and processed meat research. The Food Processing Pilot Plant is far inadequately equipped and only has a limited number of common processing equipment.

b. Equipment

[Appendix VII-2](#) lists the major equipment items used by different labs and research programs in Garrigus Building. Research instruments are not centrally located; rather, they are typically housed in the individual PIs' labs or in a room where multiple researchers work together. There are both relatively new and old instruments such as the 2-D gel electrophoresis, image analyzer, UV transilluminator for proteomics and nutrigenomics studies, humidity-temperature environmental chamber, modified atmosphere and skin package machine, texture analyzer,

rheometer, nanoscale emulsifier for food material analysis, bomb and differential scanning calorimeters for thermal analysis of polymers, and multiple HPLC and GC-MS for micronutrient and food flavor compound analysis. Detailed research resources in some individual laboratory groups are listed under <http://www.uky.edu/Ag/AnimalSciences/research/labs.html> (work in progress).

c. Farm facilities

The AFS department has three major farm facilities: 1) the C. Oran Little Research Center [so named in June, 2011 from the previous name of UK Woodford County Farm (Animal Research Center) or its predecessor Pin Oak Farm], 2) the Coldstream-Maine Chance Research Farm, and 3) the Princeton Research Facility. In addition, some beef cattle and forage research is conducted at the Eden Shale Research Farm located in Owen County.

The Little Research Center includes research facilities for beef cattle, swine, and sheep. It is also a valuable asset serving UK teaching and extension in agriculture. The Coldstream Farm currently houses the animal experiment units for poultry and dairy. The poultry unit is a joint facility of the Alltech-UK Animal Nutrition Alliance. On the other hand, the dairy unit at the Coldstream Farm has downsized in 2010 with extensive grading (and drainage changes) of the property to meet nutrient management and water quality compliance criteria. The North Farm is now compliant under a new Nutrient Management Plan. The University has indicated the dairy must vacate the farm sometime in the future and discussions are ongoing, with industry and legislative input, to develop a joint UK-Eastern Kentucky University Dairy Education and Research Center in Richmond, KY. The Maine Chance Farm is used by the equine research unit in the AFS where it accommodates the research of several equine science faculty, collaborative research with faculty in Plant and Soil Sciences, and a variety of undergraduate teaching and extension activities. Animal research (beef cattle) is also conducted at the Eden Shale Research Farm and at the Princeton Research Facility. Both of these units extend the impact of AFS and UK into the outlying areas of the state and address research issues germane to those regions.

d. UK core facilities

In addition to the research equipment and facilities existing in Garrigus Building and the several animal research farms, campus-wide facilities are available and accessible by AFS researchers. The university has established several core facilities and centers to support the research in different disciplines. These facilities are available to all UK researchers and may or may not require a user fee. Listed below are selected facilities that may be relevant to animal and food science research, and some have already been used by PIs from AFS in the past.

- [Center for Clinical and Translational Sciences \(CCTS\)](#)
- [Division of Laboratory Animal Resources \(DLAR\)](#)
- [Flow Cytometry Core Facility](#)
- [Imaging Facility](#)
- [Magnetic Resonance Imaging and Spectroscopy Center \(MRISC\)](#)
- [Mass Spectrometry Facility](#)
- [Microarray Core Facility](#)
- [Proteomics Core Facility](#)
- [Advanced Genetic Technologies Center](#)
- [Animal Genetic Testing & Research Laboratory](#)
- [Electron Microscopy Center](#)

- [Nuclear Magnetic Resonance Facility](#)
- [X-Ray Diffraction Facility](#)

VI. EXTENSION PROGRAMS

The Animal and Food Sciences Extension Program consists of 14 Faculty, 1 Specialist and 9 Extension Associates (5 Permanent, 4 Temporary). The role of AFS Extension personnel is to provide resources to Agriculture and National Resources, Family and Consumer Sciences and Youth agents to enable them to improve the quality of life of Kentucky's citizens. A multifaceted approach is utilized and individualized based on the type of clientele that are targeted. Our educational programs are primarily commodity oriented; however, we often coordinate activities within the department and across the college (i.e. Master Grazer Program). This report will begin with a listing of the current personnel with extension appointments, documentation of measurable statistics, a listing with brief description of current programs/projects and a listing of current and future needs.

Extension Faculty/Specialists

Beef

Les Anderson
Reproductive Management
Extension/Instruction

Darrh Bullock
Breeding and Genetics
Extension/Instruction

Roy Burris
Cow/Calf Management, Nutrition
Extension/Research

Jeff Lehmkuhler
Nutrition
Extension

Poultry

Tony Pescatore
Poultry Management
Extension

Dairy

Donna Amaral-Phillips
Nutrition
Extension

Jeffery Bewley
Dairy Management
Extension

George Heersche Jr.
Reproductive Physiology/Youth
Extension

Jack McAllister
Breeding Management
Extension/Research

Small Ruminants

Terry Hutchens
Goat Management
Extension

Equine

Bob Coleman
Nutrition
Extension/Instruction

Fernanda Camargo
Youth
Extension/Instruction

Food Sciences

Gregg Rentfrow
Meats
Extension/Teaching

Joe O'Leary
Food Microbiologist
Extension/Teaching

Swine

Richard Coffey
Swine Management
Extension

Extension Associates

Land Dale
Beef IRM/Applied Master Cattleman

Blair Knight
Beef IRM/Master Cattleman

Lori Porter
Beef IRM/Master Cattleman

Jacqueline Jacob
Poultry

Kevin Laurent
Beef/Swine

Jason P'Pool
Livestock Youth

Lindsay Jones
Master Grazer

Amy Lawyer
Equine Youth

Larissa Tucker
Dairy Youth

AFS Extension Statistics

Contacts						
2005	2006	2007	2008	2009	2010	2011
36,817	43,387	51,221	63,498	65,702	72,212	64,118

Funding						
2005	2006	2007	2008	2009	2010	2011
\$245,522	\$1,046,803	\$1,914,786	\$1,987,018	\$3,544,989	\$788,498	\$203,210

Scholarly Productivity							
	2005	2006	2007	2008	2009	2010	2011
Extension Publications	5	7	5	11	5	19	10
Unnumbered Fact Sheets	21	27	22	26	36	63	44
Newsletters	6	11	15	23	28	28	21
Websites	3	3	3	3	3	3	7
Popular Press	28	21	35	38	36	36	41
Electronic Media	49	35	37	40	40	41	26
Refereed Journal Articles	2	2	0	7	11	10	4
Books and Book Chapters	1	0	0	0	0	2	0
Research Reports/Proceedings	8	6	4	14	6	16	16
Abstracts	3	0	5	15	17	24	19
Agent Trainings	24	11	19	13	16	23	11

Major AFS Extension Programs/Projects

Advanced Master Cattleman

The Advanced Master Cattleman program is designed for producers who want a level of education above the Master Cattleman curriculum. The goal of Advanced Master Cattleman is to move these producers to the next level of beef production. The intent of Advanced Master Cattleman is to actually change producer behavior rather than just provide information. In general, Advanced Master Cattleman sessions will be more in-depth, and in appropriate subject areas, may also be more hands-on. Each interested multi-county chooses topics that are most needed in their area.

Allied Production and Management (A.I.M.)

The A.I.M. program encourages producers to form production and marketing alliances in order to take advantage of economies of size and to increase marketability by cooperative sales. Duties include county meetings and farm visits to provide producers with information necessary to form a production and marketing alliance.

Applied Beef Production Practices

Often, producers learn best when they apply the protocols discussed in class. On-farm demonstrations have been developed to help illustrate the production and economic advantages of applying proper beef and forage production practices. Short-, moderate-, and long-term projects have been developed by UK Specialists as templates for local use. The producer, ANR Agent, KBN Facilitator, and UK Specialist will implement the project then document the impact on production and profitability. These demonstrations will provide opportunity for hands-on training in a real-world environment while collecting valuable data to document the impact of our programs. Collaborate with Plant Science, Agriculture Engineering, Agricultural Economics, and the LDDC.

Basic Beef Agent Lyncinar Series

An online introductory beef program for new agents and those looking for a refresher within core beef production areas.

Beef Agent Certification

An agent educational program to assist them in progressing through their career ladder while increasing their core beef knowledge.

Beef Bash Field Day

An innovative hands on field day opportunity held biennially at the Research and Education Center. These outreach program is a cooperative effort between the beef specialists and other departments. The past two efforts have averaged 350 producers.

Beef Cattle Clearinghouse

A national effort to provide easy internet access to quality beef production educational materials from across the United States. National effort with collaboration between UNL, KSU, SDSU, OkSU, UTN, and NDSU.

Beef Integrated Resource Management (IRM)

Responsible for integration of IRM concepts into beef cattle production in Kentucky. The IRM concept includes evaluation of beef production and profitability by determining how cattle production is influenced by all factors of the farming operation. Collaborate with Plant Science, Agriculture Engineering, Agricultural Economics, and the LDDC.

Beef Quality Assurance

Co-developed with Dairy group and Kentucky Cattleman's Association an online program to meet new (2009) educator standards required by the National Beef Quality Assurance program.

Beef Reproduction Action Team

This committee consists of Extension Specialists, veterinarians, and industry professionals from across the country. The Reproduction Action Team developed the symposium entitled *Applied Reproductive Strategies in Beef Cattle*. This symposium has been presented at 15 different sites reaching all geographical regions of the US. The purpose of these symposia was to

educate beef producers, veterinarians, and industry professionals on the latest reproductive management protocols and how to incorporate these protocols into a production scenario. National effort with collaboration between MU, UFL, UNL, KSU, SDSU, UTN, CSU, VTU, and NDSU.

Body Condition Scoring Workshop (Horses)

A hands-on workshop on how to evaluate the body condition of horses.

Compost Bedded Pack Barns in KY.

Provides information to producers on how to build and manage these new facilities. In Fall/Winter of 2010/2011, a research project with 50 compost bedded pack barn facilities was conducted to learn more about the system and establish improved best management practices.

Comprehensive Nutrient Management Plans

Changes to environmental regulations have placed a requirement on pork producers to develop Comprehensive Nutrient Management Plans (CNMPs) as a condition of their operation's environmental permit. Technical expertise is provided to pork producers in the development of CNMPs.

Cow College

An intensive, hands on course for beef producers designed to provide them with exposure to the most cutting edge techniques and ideas related to beef cattle production and the beef business. The approach is always end product driven with emphasis on quality and efficiency in all aspects of the production and business process. The program is divided into four two day sessions and a final single day session to allow ample time to thoroughly deal with each topic area.

CPH-45 Program

Created in cooperation with the Kentucky Department of Agriculture and the Kentucky Beef Network to educate producers on proper management of weaned calves and provide marketing opportunities for Kentucky beef producers. CPH-45 combines management, health and marketing to prepare feeder calves to transition from the cow to the feedlot phase. To sell calves through the CPH program producers must be certified in Beef Quality Assurance and must follow strict guidelines for vaccinations, de-worming, weaning, and mineral supplements.

DAIReXNET

Launched Oct. 2007: DAIReXNET, a national, extension-driven web resource, is designed to meet the educational and decision-making needs of dairy producers, allied industry partners, extension educators and consumers. Through collaboration amongst dairy professionals, relevant, cutting-edge information and learning opportunities are provided which are science-based and peer-reviewed in a format accessible 24/7. Informational resources include (1) answers to frequently asked questions (423 FAQ's), (2) access to information by top experts in their fields of expertise (219 questions answered), (3) access to cutting-edge content currently in 13 subject areas (384 pieces of content available), (4) 13 learning modules, (5) 8 webinars presented live then archived (Topics include ways to improve public perception of dairies, mastitis control, managing transition dairy cows, and 3 webinars on environmental issues related to nitrogen, phosphorus and air quality issues), (6) searchable state and regional newsletters, (7) consumer links about the dairy industry and its products, and (8) news and lists

of upcoming extension programs. Leadership for this project is provided by 11 dairy extension professionals from across the United States. Additionally, our subject areas are led by 13 dairy experts from across the country. To date, 343 dairy professionals representing 40 universities and many allied industries have contributed to this resource. From April 1, 2009 through August 15, 2011 (dates Google Analytics are available), 727,931 pages have been viewed with an average of 14,128 unique visitors per month with people spending an average of 2:23 minutes per article/page. Each webinar has been viewed an average of 518 times. DAIReXNET and can be accessed through the following web address: (<http://www.extension.org/dairy+cattle>).

Dairy Challenge

A scholastic competition where undergraduates evaluate a dairy operation and develop and present their recommendations for ways to improve this operation. To prepare for this competition, teams have visited 5 to 10 dairy farms and prepared recommendations for these farms. Farmers were pleased with the visits and their neighbors are wanting to be part of the program. This program represents an integration of extension and instruction areas of the land-grant mission of universities at the same time training future dairy leaders.

Dairy Herd Improvement (DHI) Records

Education on the use of DHI records is done as part of teaching management principles to dairy producers. A total of 15 training workshops on PCDART, in collaboration with the general manager of Mid-South Dairy Records, have been conducted for producers. Assistance has been provided to producers and agents with specific questions about the DHI program, the PCDART on-farm PC computer program and DHI records. Record summaries have been compiled annually for two local DHI groups and two statewide groups – the KY Jersey Cattle Club and KY Dairy Development Council.

Dairy Nutrition and Feeding Mgt Programming

The KY Dairy Industry has undergone several financial (high feed costs and/or low milk prices) and weather related challenges within the last few years. These challenges definitely have negatively impacted the profitability and thus survivability of dairy farms in KY and across the US. To help dairy farmers survive these challenges, regional meetings were conducted, and written peer-reviewed, newsletter articles published in electronic format on-line and provided to KY Extension Educators for use in local newsletters, radio programs and newspaper articles. In addition, farmer's individual questions regarding feeding programs and implementation of sound, balanced rations for both the dairy milking herd and replacements have been answered.

Dairy Production Shortcourses

These intensive series of one-day programs are designed to help dairy producers learn more about implementation of sound production practices while they develop friendships and learn from one another. The farmers design these programs with the help of their county extension agents and state extension specialists. Each year the farmers have chosen 3 areas for a winter educational series.

Dairy Reproductive Management

To provide sound extension educational programs in dairy cattle reproductive management. My overall program goal is to make KY dairymen aware of the financial gains which can be realized through proper breeding and reproductive management.

Equine Initiative Agents Workgroup: First Time Horse Owners

To develop/find resources for new horse owners. Collaboration with Extension agents.

Equine Initiative Agents Workgroup: Basic Horse Handling Workshop and Clinic

Basic horse husbandry workshop, combined with hands-on basic horse handling and training. Collaboration with Extension Agents.

Extension programming in KY to address somatic cell count challenges: In KY, we have implemented a multi-faceted approach to extension programming for SCC reduction. The University of KY Dairy Extension team has worked closely with the KY Dairy Development Council in a farm-based program entitled M.I.L.K. Counts with 49 participants to date with SCC reductions as high as 400,000 cells/mL. YouTube videos were developed (<http://www.youtube.com/user/UKAgriculture>) to demonstrate recommended milking procedures and to provide virtual tours of farms that consistently maintain low SCC. A visual analytics dashboard (<http://tinyurl.com/UKMilkBonus>) was created to illustrate the potential for increased income through SCC reductions. Lastly, a series of SCC reduction workshops were conducted across the state working with county extension agents and milk cooperative field people.

4-H Country Ham Project

4-Her's dry cure two hams and give a speech at the state fair. This year's project has over 630 4-Hers from 54 counties.

4-H Horse Program -

Facilitates the education of 4-H youth about horses and orchestrates activities for kids to display their skills and knowledge of horses.

4-H Livestock Judging Program – The Kentucky 4-H Livestock Judging Program is a valuable educational experience for Kentucky's youth. While youth gain considerable knowledge about various aspects of livestock evaluation through their participation in this programs, the important life skills these youth learn through participating are the real hallmark of the Livestock Judging Program. Youth develop character and learn the value of the hard work and preparation that it takes to be successful, and develop decision-making and communication skills that will stay with them for a lifetime. In addition, the friendships these youth make with others from different areas of the state are one's that will remain with them throughout their lives.

4-H State Meats Judging Contest

4-Her's evaluate and rank classes of 4 carcasses, wholesale cuts, and retail cuts (beef and pork), as well as identify 30 retail cuts and two sets of reasons.

4-H/FFA Market Animal Validation Program – The 4-H/FFA Market Animal Validation Program helps to ensure the integrity of the market animal program. The goal of the program is to document ownership and youth participation by tagging all market steers, market lambs, market goats, and market swine with an R.F.I.D. tag (that serves as the Kentucky Uniform Identification Program (K.U.I.P.) tag), and taking tissue samples from each tagged animal for DNA identification. All market steers, market lambs, market goats, and market swine that will be exhibited at Kentucky Department of Agriculture (KDA) shows and (or) the Kentucky State Fair must go through the validation process.

4-H/FFA Market and(or) Breeding Animal Projects – Market and breeding animal projects provide youth with opportunities to expand their knowledge of animal industries, production and, more importantly, develop the life skills that are needed to be positive contributors to society.

Through livestock projects youth will learn about selection and evaluation, nutrition and feeding, health and daily care, reproduction, marketing, and much more. Youth learn to accept responsibility, to value hard work, think critically, make decisions, and communicate. Livestock projects provide a great avenue to meet and develop friendships with other youth and leaders from across the state. Young people are also able to connect with supportive adults (who serve as mentors), demonstrate a commitment to learning, develop social competencies and gain exposure to career opportunities.

4-H Livestock Skillathon Program – The Kentucky 4-H Livestock Skillathon Program provide a valuable educational experience for youth. The content of this program provides a framework for youth to learn a variety of topics related to the production and management of beef cattle, meat goats, sheep, and swine. Participants in this program learn about different breeds of livestock, external parts of livestock, skeletal anatomy of livestock, feedstuffs used in livestock diets, equipment using in raising and showing livestock and in processing meat, wholesale and retail cuts of meat derived from livestock, expected progeny differences (EPDs), common calculations used to measure animal performance and profitability, judging hay, judging meats, and judging performance classes of livestock.

4-H Poultry Program

The 4-H poultry program continues to expand. A concentrated effort over the last four years with area trainings for 4Hers and training for agents and leaders has increased awareness of the programs. Resources for agents and leaders have been developed and are available on line. Record numbers of teams are now competing in Avian Bowl. The embryology program is one the biggest animal programs.

Food Defense/Security

Teaches the importance of protecting the food supply from attack and aid companies in developing a Food Defense Plan.

Food Systems Innovation Center

The FSIC provides affordable research and development services to Kentucky's small and medium sized food processors.

Forage-Finished Beef

Multi-disciplinary risk management educational program led by the Agricultural Economics department.

Freestall Barn Renovations: During the fiscal year 2010-2011, opportunities for farm-specific freestall modifications with 8 producers were pursued. The potential economic impacts of freestall modifications on 20-40 year old facilities toward increased production, reduced lameness, improved milk quality, reduced culling rates, and increased longevity are immense.

Hazard Analysis and Critical Control Points (HACCP)

HACCP plans are mandatory in the meats industry and suggested in other food industries, thus training is annually for Kentucky's meats and food industry, as well as personnel consultations are performed when requested.

Horse College

A multi-county program covering basic horse care information 4-5 evenings. Topics include items such as: nutrition, health breeding, hoof care, facilities, behavior, conformation. Industry expertise is used to cover these topics as needed.

Horse Owners Grazing School

A multi-county program that focuses on grazing management for horse owners. This is a four evening program that includes significant participation by the hosting agents.

“How to conduct a clinical examination on your horse” Workshop

A hands-on workshop on how to evaluate the health of horses.

“How to wrap your horse’s legs” Workshop

A hands-on workshop on the different horse leg wrapping techniques.

Integrated Management Training and Dairy Farm Business Management

The aim of these educational programs is to improve the management skills of dairy producers and thus the financial success of their business and the quality of life of their families. They should also then be equipped to more effectively use the technical information disseminated in traditional extension programs. Nearly 40 county or area programs or workshops have been conducted on the topics of dairy farm business management, dairy genetics or DHI records as a management tool.

Kentuckiana Dairy Exchange

The Kentuckiana Dairy Exchange is a joint program between the UK College of Ag. and Purdue University with sponsorship and support from the KY Dairy Development Council (KDDC). This forum was designed for the exchange of ideas and information between producers within and across KY and IN. Over 100 people annually have attended the event for the last 4 years peaking at 167 in 2011.

Kentucky Cowpokes: A Youth Master Cattleman Program

A program designed for youth groups based on materials from the Master Cattleman Program. Presented in stand alone interactive modules upon request.

Kentucky 4-H Horse Volunteer Certification Program

Trains volunteer leaders in the 4-H Horse Program. In conjunction with the Kentucky 4-H Program.

Kentucky 4-H Livestock Volunteer Certification (KLVC) Program – The KLVC Program encapsulates into one collection the entire curriculum, projects, learning activities, and educational resources that collectively encompass the Kentucky 4-H Livestock program. The goals of the program include (1) ensuring that all youth and Volunteer Leaders have access to high quality, comprehensive materials, regardless of county resources, (2) ensuring a sound and well-rounded educational experience for youth enrolled in livestock and livestock-related projects, and (3) empowering Volunteer Leaders to successfully lead a club in a fun, interactive environment. Workshops (1-½ days in length) are conducted to demonstrate and describe the use of the curriculum and resource kit, to provide Volunteer Leaders with instruction on teaching methods that create a fun, interactive learning environment for youth, and to certify Volunteer Leaders in the KLVC program.

Kentucky 4-H Volunteer Forum Horse Track

A series of seminars and workshops to train volunteer leaders and agents on different aspects of horse husbandry, youth programming and the KY 4-H Horse Program.

Kentucky Beef Genetic Improvement Program (KY Ag Development Board)

Provide cost-share for bulls that meet strict requirements to improve the genetics of Kentucky's beef herds. Our role is development of the guidelines and education.

Kentucky Equine Youth Festival

An educational program about the 8 disciplines that competed in the World Equestrian Games. It brought 6,000 attendees. Collaboration with different national and state horse organizations and associations.

Kentucky Heifer Development Program (KHDP)

Program designed to assist beef producers by establishing heifer development centers and heifer development sales. The centers are responsible for nutritional, health and reproductive management of the heifers. Producers then select their replacement heifers and the remaining are sold in a cooperative sale. Producers also participate in educational programs to become familiar with the development techniques.

Kicking and Screaming: A Day with the Trainer

Basic horse handling clinic.

KY Dairy Development Council

Two dairy extension specialists helped to form the KY Dairy Development Council (KDDC) in 2005 and have contributed to its continued development over the past six years. Key elements of the programs which are a part of KDDC are dairy recordkeeping through the Dairy Herd Improvement Program, dairy farm business management assistance through the KY Farm Business Management program and the M.I.L.K. Counts program. Four extension dairy specialists have served as educators for the dairy consultants that work for KDDC as well as educators for topics in at least 15-20 KDDC programs and activities each year.

KY Dairy Producer Decision Making Survey

To characterize the management of KY dairy operations, a survey was distributed to all licensed milk producers in the state. A total of 229 producers responded to the survey. Utilization of survey results should help industry professionals address producer issues and concerns.

Master Cattleman Program

The program consists of ten 4-hour sessions that focus on beef cattle production including: Management Skills, Forages, Nutrition, Facilities and Animal Behavior, Environmental Stewardship and Industry Issues, Genetics, Reproduction, Herd Health, End Product, and Marketing and Profitability. Each session is developed by subject matter specialists from the University of Kentucky, who also deliver the program. Collaborations include Plant & Soil Sciences, Biosystems & Agricultural Engineering, Agricultural Economics, the LDDC and the Kentucky Cattleman's Association.

Master Grazer Educational Program: This program is a collaborative effort between UK agronomy, animal sciences, and National Resources Conservation Service (NRCS) to educating producers and extension and NRCS personnel on ways to improve the utilization and quality of grazed forages. This program has included (1) educational programs (4 to 7, 3-hr sessions / location) conducted at 24 locations for 730 producers, (2) 30 demonstration herds located throughout KY, (3) 4 - 2-day intensive KY Grazing Schools, (4) 8 locations for applied master grazer sessions on farms illustrating concepts, (5) development of producer grazing networks, and (6) expansion of training opportunities for agricultural agents and NRCS personnel (3 sessions held).

Master Stocker Program

A multi-disciplinary educational program for producers focused on the stocker and backgrounding industry.

Mid-South Stocker Program

Collaborative effort with the University of Tennessee and industry to provide a 2-day educational program focused on stocker production.

On-Farm Applied Swine Research – Applied research is an important part of the swine Extension program. Conducting research on commercial farms within the state provides answers to important issues that are confronting producers, allows evaluations and demonstrations under conditions that are similar for other producers, provides farm level data that is often viewed as more applicable by producers, and also gives me greater credibility as I work and communicate with many of my clientele. A major applied research project that has been underway since 2009 is “Development and Implementation of a High-Rise Swine Manure Composting Production Facility”.

Pasture Please

A multi-departmental program offered in a single 2-hour seminar to introduce horse owners to the basics of pasture management. This program has been given across the state and includes the departments of Plant & Soil Science, Animal Science, and Vet Science.

Phase I Cattle Genetic Improvement Program: The KY Agriculture Development Board has approved model county projects in Cattle Genetic Improvement. Questions from county agents and producers on the guidelines for AI and natural service dairy bulls which qualify for the program have been answered and documentation given, three times per year, of the genetic standards for AI and natural service dairy bulls and the genetic change in the dairy population as it impacts applying these standards over time.

Pork Producer Marketing Cooperative – Continued assistance is provided to the Central Kentucky Hog Marketing Association, a collection of 10 small to mid-sized pork producers in Central Kentucky area. These producers pool their market animals together so they can market semi-trailer loads, ensuring packer access. Educational programs and demonstrations have led the group to utilize artificial insemination so that all producers have similar genetics, allowing the use of similar diets so that feed inputs (and other inputs) can be purchased as a group to receive price discounts.

Pork Quality Assurance Plus Program – In 2007, Pork Quality Assurance evolved into Pork Quality Assurance Plus (PQA Plus) to reflect increasing customer and consumer interest in the

way food animals are raised. The PQA Plus Program achieves its goals through (1) producer training by a certified PQA Plus advisor which results in the producer receiving PQA Plus certification, and (2) an objective assessment of on-farm animal well-being which, when combined with the education of the producer through PQA Plus certification, results in the farm receiving PQA Plus site status. As Kentucky's State Trainer for the PQA Plus Program, training is provided to County Extension Agents so they can serve as PQA Plus Advisors, as well as conducting producer PQA Plus Certification Meetings and PQA Plus Site Assessments.

Poultry Energy Project

The energy project has increased the awareness of growers about energy conservation. Through local meetings and statewide conferences educational opportunities have been provided to producers throughout the state. The Poultry Producers Manual that is available online is an outstanding reference book of growers. The poultryenergy.com website has 750 hits per week. (Kentucky Poultry Federation and Biosystems and agricultural engineering)

Precision Dairy Farming Applied Research and Outreach

Precision Dairy Farming is the use of technologies to measure physiological, behavioral, and production indicators on individual animals to improve management strategies and farm performance. In 2010, a large Precision Dairy Farming research project at the UK Coldstream Dairy was initiated to evaluate the potential for multiple Precision Dairy Farming technologies simultaneously.

Saddle Up Safely

Works with UK Healthcare among other organizations to educate and increase awareness of safe practices while around horses.

Smallflocks Website

A new web site smallflocks.com has been created and receives 1300 hits per week. Thirty fact sheets have been created and posted on the web site. Agent in service training has been offered five times at three locations in the state. County meeting on small poultry flocks have been conducted. These efforts have increased the amount of reliable information available to this population. Processing and consumer safety are still an issue so we continue to work with t Kentucky State University, Department of Health, KY Department of Agriculture and Partners for Family Farms to develop operating procedures for mobile processing trailer and conducted training programs for small flock producers.

University of Kentucky Meat Cutting School

The UKMCS teaches the basics of meat processing, including proper slaughtering techniques, profitable carcass and box meat fabrication, processed meats, and food safety.

West Kentucky Select Bred Heifer Sales

These sales were established as an annual opportunity for progressive cattle producers to purchase quality replacement heifers. Heifers must meet stringent health and physical requirements to be eligible for these sales. Heifers must have a yearling pelvic measurement of 160 square centimeters and be bred to bulls with known calving ease EPDs. Many of the heifers were home raised on the consignors' farms and all have been through a complete herd health

program. Two sales are offered each year – a spring calving heifer sale has been held since 2000 and a fall calving heifer sale began in 2006 to meet the demand from fall calving herds.

Current and Future Needs

Department of Animal and Food Sciences

- Maintain a critical mass of faculty. Budget constraints over the last several years have resulted in loss of number of faculty. We need to make sure we maintain a “critical mass” of faculty in our determined high priority areas.
- With the upcoming retirement of Jack McAllister, the dairy extension group has looked at how we can meet the educational needs of our dairy clientele with less FTE’s at least in the short term. We have developed a plan to temporarily cover his educational areas within dairy and are discussing with key industry leaders other ways to cover several of his service obligations. However, with the additional educational areas covered by the current FTE’s, other dairy programs will need to be downplayed or eliminated to cover the additional responsibilities. There comes a time when we can only do so much with less.
- Funding to ensure valuable programs and activities can continue. Often times it seems that we do programs and activities for which we can find funding, which might not always be the programs and activities we feel are most important.
- We have several Beef Extension Associates, most on soft money through grants; we need to convert these to hard funded positions when possible. Our ability to secure funding for these positions has left us out of contention when several hard funded Associate positions have become available in the department.
- Additional Extension Associates to provide support for programs and activities.
- If extension faculty is going to teach more in the department then we need to change DOEs and use the extension lines for more support staff.
- The college needs to start funding 4-H, State Fair and North American activities that come out of department funds.
- A suitable facility to host Equine Educational Activities. This needs to include classrooms, arena and stabling. This facility could be used for 4-H contests i.e. judging both Equine and Livestock.
- Need to improve IT support in the department. Need to evaluate staffing and reallocate lines to reflect change in Kentucky agriculture.

- Web content manager is needed to actively develop, update and summarize web content and visitation statistics.
- We need to have portable web access for all extension personnel.

VII. YOUTH PROGRAMS AND ACTIVITIES

The Department of Animal and Food Sciences provides a vibrant and diverse set of programs and activities for 4-H and FFA youth. These programs cover the broad areas of beef, dairy, horse, goat, poultry, sheep, swine, meats, and country ham. The department presently has five Extension Faculty and three Extension Associates with major youth programming responsibilities. Below is a listing of these individual faculty and staff and the youth programs and (or) activities with which they provide leadership or oversight. The department also has several other Extension faculty and staff that provide varying levels of support for specific youth programs or activities.

Dr. Robert Harmon, Department Chairman
Administration

Dr. Richard Coffey, Department Youth Programs Coordinator and Extension Swine Specialist
Kentucky 4-H Livestock Volunteer Certification Program
4-H/FFA Youth Livestock Projects (beef, goats, sheep, swine)
4-H/FFA Youth Market Animal Validation Program
4-H/FFA Youth Breeding Animal Nomination Program
4-H Livestock Judging Program
4-H Livestock Skillathon Program
State Trainer for Youth Pork Quality Assurance (PQA) Plus Program
Kentucky 4-H Volunteer Forum Livestock Track
Superintendent of 4-H/FFA Youth Swine Shows at Kentucky State Fair
Kentucky State Fair Youth Livestock Shows Advisory Committee
Assistant Superintendent at NAILE Junior Market Swine Show
Kentucky Department of Agriculture District Livestock and Jr. Livestock Expo Shows Advisory and Planning Committee
Kentucky 4-H and FFA Youth Livestock Project Camps

Jason P'Pool, Extension Associate for Youth Livestock Programs
4-H/FFA Youth Livestock Projects (beef, goats, sheep, swine)
4-H/FFA Youth Market Animal Validation Program
4-H/FFA Youth Breeding Animal Nomination Program
4-H Livestock Judging Program
4-H Livestock Skillathon Program
Kentucky 4-H Volunteer Forum Livestock Track
Assistant Superintendent of 4-H/FFA Youth Swine Shows at Kentucky State Fair
Kentucky Department of Agriculture District Livestock and Jr. Livestock Expo Shows Advisory and Planning Committee
Kentucky 4-H and FFA Youth Livestock Project Camps
Ohio County Youth Agriculture Days for 4th Grade Students
Ohio County 4-H Agriculture Camps for 6th Grade Students

Dr. George Heersche, Extension Dairy Specialist
Kentucky 4-H Livestock Volunteer Certification Program
4-H/FFA Youth Dairy Projects
4-H Dairy Judging Program
4-H Dairy Jeopardy Program

4-H Dairy Skillathon Program
4-H Dairy Cow Camp
4-H Dare to Dairy Program
Oliver and Virginia Payne Endowment for 4-H Dairy Programs
National FFA Convention Host Committee
National 4-H Dairy Conference
Chairman of National 4-H Dairy Cattle Judging Contest Management Committee
Co-Superintendent of NAILE Dairy Cattle Judging Contest
Kentucky Department of Agriculture District Dairy and Jr. Livestock Expo Dairy Shows Advisory
and Planning Committee
Chairman of Kentucky Holstein Scholarship Committee

Larissa Tucker, Extension Associate for Youth Dairy Programs
Kentucky 4-H Livestock Volunteer Certification Program
4-H/FFA Youth Dairy Projects
4-H Dairy Judging Program
4-H Dairy Jeopardy Program
4-H Dairy Skillathon Program
4-H Dairy Cow Camp
4-H Dare to Dairy Program
Oliver and Virginia Payne Endowment for 4-H Dairy Programs
National FFA Convention Host Committee
National 4-H Dairy Conference
Assistant Superintendent of NAILE Dairy Quiz Bowl Contest
Co-Superintendent of NAILE Dairy Cattle Judging Contest
Kentucky Department of Agriculture District Dairy and Jr. Livestock Expo Dairy Shows Advisory
and Planning Committee

Dr. Fernanda Camargo, Extension Equine Specialist
Kentucky 4-H Horse Volunteer Certification Program
Kentucky 4-H Horse Program
Kentucky State 4-H Horse Judging Contest
Kentucky State 4-H Horse Bowl Contest
Kentucky State 4-H Hippology Contest
Kentucky State 4-H Horse Crafts Contest
Kentucky State 4-H Horse Communications Contest
Southern Regional 4-H Horse Championships
Eastern National 4-H Horse Roundup
Kentucky State 4-H Horse Show
Kentucky Equine Youth Festival
Kicking and Screaming: A Day with the Trainer
Saddle Up Safely
Body Condition Scoring Workshop
“How to wrap your horse’s legs” Workshop
“How to conduct a clinical examination on your horse” Workshop
Kentucky 4-H Volunteer Forum Horse Track
Equine Initiative Agents Workgroup: First Time Horse Owners:
Equine Initiative Agents Workgroup: Basic Horse Handling Workshop and Clinic

American Youth Horse Council

Katherine Lawyer, Extension Associate for Youth Horse Programs

Kentucky 4-H Horse Volunteer Certification Program
Kentucky 4-H Horse Program
Kentucky State 4-H Horse Judging Contest
Kentucky State 4-H Horse Bowl Contest
Kentucky State 4-H Hippology Contest
Kentucky State 4-H Horse Crafts Contest
Kentucky State 4-H Horse Communications Contest
Southern Regional 4-H Horse Championships
Eastern National 4-H Horse Roundup
Kentucky State 4-H Horse Show
Saddle Up Safely
American Youth Horse Council

Dr. Gregg Rentfrow, Extension Meats Specialist

Kentucky 4-H Livestock Volunteer Certification Program
4-H Country Ham Program
4-H Meats Judging Program

Dr. Anthony Pescatore, Extension Poultry Specialist

4-H Chicken Barbeque Demonstration Contest
4-H Turkey Barbeque Demonstration Contest
4-H Egg Preparation Demonstration Contest
4-H Avian Bowl
4-H Poultry Judging
4-H Poultry Projects
Embryology in the Classroom
Assistant Superintendent for National 4-H Poultry and Egg Conference

Dr. Jacquie Jacob, Poultry Extension Associate

4-H Chicken Barbeque Demonstration Contest
4-H Turkey Barbeque Demonstration Contest
4-H Egg Preparation Demonstration Contest
4-H Avian Bowl
4-H Poultry Judging
4-H Poultry Projects
Embryology in the Classroom
Secretary for National 4-H Poultry and Egg Conference

Number of Youth Contacts by Year

Name	Fiscal Year					
	2005 ^a	2006	2007	2008	2009	2010
Donna Amaral-Phillips		325			320	270
Les Anderson		12				
Jeffrey Bewley			25		271	142
Darrh Bullock		790	264	393	405	557
Roy Burris						21
Fernanda Camargo			1,050	1,909	6,075	3,337
Richard Coffey		2,479	2,364	2,300	1,334	2,195
Robert Coleman		1,587	150	150	1,105	105
Jerene Gilliam		17				
Kristen Harvey		1,165	4,584	2,807	8,677	
George Heersche		1,095	1,010	1,265	1,195	1,340
Terry Hutchens					1	73
Jacquie Jacob					358	1,224
Kevin Laurent		479	753	321	331	185
Katherine Lawyer						276
Jeff Lehmkuhler					8	
Allan McAllister			155	100	69	132
Anthony Pescatore		1,031	715	1,014	1,122	1,641
Lori Porter		166	4			
Gregg Rentfrow		666	691	870	1,156	923
Jason P'Pool			2,936	2,922	2,932	3,028
Larissa Tucker			1,654	1,532	1,639	1,784
TOTAL		9,812	16,355	15,583	26,998	17,233

^aUnable to determine the number of youth contacts due to the method in which contacts were reported. All contacts (youth and adult) were lumped together.

Funding for Youth Programs

Substantial financial resources are needed to support the youth programs and activities of the department. While some of the expense to operate various programming areas are funded with registration fees from participants, a significant portion of funding for youth programs/activities comes from donor solicited funds and grants. Below is a listing of support funding (not including registration fees) for each of the major youth programming/activity areas.

Youth Programming Area	Year						
	2005	2006	2007	2008	2009	2010	2011
Beef/Goat/Sheep/Swine	\$45,522	\$29,899	\$12,254	\$15,367	\$25,045	\$21,438	\$28,935
Dairy	\$10,107	\$10,107	\$10,107	\$10,107	\$10,107	\$10,607	\$10,107
Equine	\$50,000	\$50,000	\$50,000	\$53,663	\$51,652	\$83,907	\$51,850
Poultry	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500
Meats/Country Ham ^a	0	0	0	0	0	0	0
TOTAL	\$108,129	\$92,506	\$74,861	\$81,637	\$89,304	\$118,452	\$83,285

^aFunding for Meats and Country Ham Projects and Activities is obtained through registration fees from participants.

Publications for Youth Programs/Activities

Item	2005	2006	2007	2008	2009	2010	2011	Total
Numbered Extension Publications				4		6	5	15
Unnumbered Fact Sheets	2	11	1	17	17	26	16	90
Curriculum			4			1		5
Newletters								0
Websites	3	2	3	2	2	2	4	18
Popular Press	2		3	2		2	4	13
Electronic Media (CD, DVD, Video, Radio)	1	1		5	5	6	4	22
Refereed Journal Articles							1	1
Books and Book Chapters				1				1
Research Reports/Proceedings								0
Abstracts								0

Awards and Recognition

Dr. Richard Coffey

- Extension Award from Southern Section American Society of Animal Science (2011).
- Honorary Kentucky FFA Degree (2011).
- FFA Honorary Chapter Degree from Christian County FFA Chapter (2008).

Dr. George Heersche

- Hoard's Dairyman Youth Development Award presented by the American Dairy Science Association (2008).
- Friend of Kentucky 4-H Award (2006).
- W.T Withers Memorial Award for Outstanding Service presented by Kentucky Brown Swiss Association (2005).
- Honorary American FFA Degree (2005).

Dr. Fernanda Camargo

- Employer Partner of the Year awarded by the James Stuckert Career Center (2009).

Dr. Anthony Pescatore

- USDA Certificate of Appreciation in recognition of 25 years of service to the National 4-H Poultry and Egg Conference.

Current/Future Needs for Youth Programs/Activities

- Establishment of an endowment to provide financial support for Animal and Food Sciences youth programs and activities.
- Funding to support programs and activities.

- Facilities to host events such as the Kentucky 4-H Livestock Judging Contest, Kentucky 4-H Skillathon Contest, Livestock Judging Clinics/Workshops, Livestock Project Camps, etc.
- Continue to find ways to adopt and implement new technologies for delivering programs and disseminating information.
- Technical support for new technologies and their use.
- Seek out ways to reach out to non-traditional audiences.
- A classroom building and equine arena to allow for more hands-on youth and adult training.
- Continue improving lines of communication with State 4-H Office.

Animal and Food Sciences

Self Study
2005 – 2011

Appendices

Animal and Food Sciences

Self Study 2005 - 2011

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Animal and Food Sciences

Appendix I

2009 – 2014 Strategic Plan



**Department of Animal and Food Sciences
Strategic Plan**

2009-2014

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MISSION AND VISION ANIMAL AND FOOD SCIENCES

WHO WE ARE

The Department of Animal and Food Sciences addresses the major issues faced by animal agriculture today – production efficiency, sustainability, animal welfare, environmental stewardship, food safety and food quality – through our programs in research, instruction and extension. These issues represent challenges and areas for science-based discussions with clientele and consumers. We are involved in multidisciplinary research programs that advance our knowledge of animal biology and production systems and their relationship to the environment, as well as processing, preservation, and improvement of human foods. Our instructional programs focus on the application of science and technology to animal and food production. Our extension programs advance sustainable agricultural and food systems and assist our youth to develop character traits needed to be successful citizens.

OUR VISION

As a part of the Land Grant system, our teaching, research and extension programs strive to make a positive difference in people's lives.

LAND-GRANT VALUES

We are guided by the values underlying the land-grant philosophy:

- learning – enhancing access to educational opportunities for all;
- discovery – expanding knowledge through research; and
- engagement – collaborating with diverse institutions, communities, and people to improve lives.

A hallmark of our work is the integration of these three values – learning, discovery, and engagement – into programs that make a difference.

OUR MISSION

The mission of the Department of Animal and Food Sciences is to:

- develop, improve, and promote sustainable animal production systems;
- improve the health and well-being of animals in food and non-food production systems;
- enhance the quality, utilization and safety of food products;
- facilitate life-long learning through:
 - creative research and discovery,
 - challenging and encompassing education,
 - effective engagement and technology transfer.

GOAL 1

Prepare Students for Leadership in an Innovation-Driven Economy and Global Society

The Department of Animal and Food Sciences takes pride in offering an educational program that provides students with current, research-based information and a solid base of concepts related to animal products, production, performance, and well-being. The Department strives to attract, retain, and graduate outstanding students who will become leaders in their professions and communities. This includes providing appropriate advising to assist students in achieving their academic goals in a timely manner, extracurricular activities to complement coursework and facilitation of internship opportunities and other interactions with the animal industry.

Most Significant Challenges

1. Classroom space is increasingly limited and some current classrooms are inadequately equipped.
2. Potential increases in funding opportunities are limited.
3. The current system of tracking graduates needs to be strengthened and improved.
4. Freshman retention and six-year graduation rates are less than desired.

Strategies

1. Provide the best possible learning environment for students with dedicated faculty, instructors, advisors and staff.
2. Implement current and new technology in the classroom, including the development of virtual classrooms.
3. Foster student participation and growth through personal and professional development opportunities beyond the classroom.
4. Use the experience of incoming students, career paths of recent graduates, and feedback from graduates' employers to help drive curriculum changes.
5. Expand faculty involvement in and financial support of Departmental scholarship and recruitment programs.
6. Increase expertise and recognition of faculty for academic and extracurricular advising.
7. Encourage students to add business related coursework in their degree programs.

Key Indicators, by 2014 the Department will have:

1. Increased the first-to-second year retention rate of full-time, degree-seeking students in the program to over 65%.
2. Increased scholarship funding awarded to students within the department by 10%.
3. Increased the percentage of full-time students graduating within a 6 year period from time of first enrollment.
4. Established a working database of graduates; actively monitored career paths.

GOAL 2
Promote Research and Creative Work to Increase the Intellectual, Social and Economic Capital of Kentucky and the World Beyond its Borders

The Department of Animal and Food Sciences' land-grant mission encourages truly creative research endeavors that result in the discovery of new knowledge. The Department's research activities will be focused on acquiring fundamental knowledge related to animal biology and management, animal and human nutrition, processing of food products and ensuring of their safety/security, and the interface of animal agriculture with the environment. The Department aspires to capitalize on the individual and collective achievement of our faculty by applying discoveries to the improvement of agriculture, industry, families, and communities at the state and national levels.

Most Significant Challenges

1. Infrastructure and facilities limit the potential for continued growth of research:
 - Increasing operating costs and lack of adequate equipment funds hinder research capability and productivity. Our most successful research programs have insufficient equipment support for further expansion and development.
 - Off-campus research facilities (farms) are not well maintained due to repeated state, university, and college budget cuts.
2. Repeated budget cuts have created key vacancies in both faculty and staff lines which pose real challenges to attain the top 20 status.

Strategies

1. Aggressively pursue funding opportunities and sources that support fundamental/applied research, particularly federal competitive and targeted initiative funds.
2. Identify opportunities for both intra- and extramural equipment funds and encourage faculty to apply to those programs.
3. Encourage faculty to include salary savings in federal grant submissions as an incentive to generate more extramural support.
4. Strengthen existing and develop new multi-disciplinary research programs that target funding opportunities available only to multi-university (institution) collaborations.
5. Continue to actively compile, document and communicate impacts of our research.

Key Indicators, by 2014 the Department will have:

1. Maintained the annual total external grant awards above \$100,000 per research FTE.
2. Maintained at least 2 graduate students per research FTE.
3. Maintained at least four extramurally funded postdoctoral scholars/research associates.
4. Obtained at least two pieces of major equipment.
5. Increased patent submissions by 20%.
6. Maintained the number of refereed journal publications per research FTE above 3 per year.

GOAL 3

Develop the Human and Physical Resources of the Department to Achieve Top 20 Stature

The Department of Animal and Food Sciences offers access to knowledge and learning for citizens and students throughout the Commonwealth. Our mission is to discover and disseminate knowledge through innovative programs in teaching, research and extension. We will continue to recruit and retain faculty and students of the highest caliber in order to maintain our status as one of the top departments of its kind in the nation.

Most Significant Challenges

1. Infrastructure and capacity appear likely to constrain further growth and advancement in all mission areas, and across most units in the Department. Limits have been reached in:
 - quantity and quality of office, laboratory, meeting and teaching space,
 - ability to sustain and update existing farm, laboratory and teaching facilities,
 - IT and communications support and hardware,
 - business and document management of grants/contracts, animal units and other functions.
2. Budget circumstances portend limited growth in faculty numbers, and may result in decreased faculty numbers. Expansion of enrollment or grant funding is difficult without addition of faculty.
3. Attracting, retaining and compensating highly skilled staff remains a challenge.
4. Recruitment or development of faculty at the most distinguished level (e.g., academy-level) remains severely limited by budget cuts and by the limitations in infrastructure for the development of state of the art laboratory and research facilities.

Strategies

1. We will strive to recruit, develop and retain nationally distinguished faculty and students.
 - We will opportunistically reallocate resources to retain exceptional mid-career faculty who bring elevated recognition and leadership to the department.
 - We will improve strategies for recruiting and developing new faculty who have the potential to become national leaders in their area of expertise.
 - We will continue to recruit and support excellent graduate students and postdoctoral scholars who can contribute to the research, teaching and extension missions of the Department.
2. We will further develop plans for expanding and enhancing the physical infrastructure needed to sustain the growth and advancement of the last decade.
3. We must seek increased funding for high-quality lab, teaching, and field facilities, as well as for extension programs and projects.
4. We will seek to improve recruitment, retention, and remuneration of staff.
5. We will continue to improve access to resources and infrastructure through enhanced business management, information technology, and support systems.

Key Indicators, by 2014 the Department will have:

1. Sustained its funding and publication record.
2. Increased the principal value of its endowment by 10%.
3. Continued its high level of nationally and internationally-recognized programs, faculty and graduate students.
4. Continued to renovate and maintain the functionality of existing facilities, laboratories and classrooms to support teaching, research and extension programs.

GOAL 4

Promote Diversity and Inclusion

The Department of Animal and Food Sciences is committed to creating an environment where diversity is valued and all individuals can fulfill their highest potential. Respect for diversity of thought, culture and all human differences is the cornerstone of all our actions. To implement this mission, diversity, fairness, and equity in policies and practices must be an essential part of learning, discovery and engagement.

Most Significant Challenges

1. Funding is limited for support of minority positions.
2. There is a paucity of qualified minority candidates for either faculty, staff or graduate student positions.

Strategies

1. Progress toward implementation of recommendations or objectives set forth by the department will be reviewed annually.
2. A network of partners with the 1890 land-grant universities, especially Kentucky State University, will be utilized to recruit faculty, staff and students and fulfill the different land grant missions.
3. The Department will utilize the Office of Diversity in support of recruitment of students, staff and faculty.
4. The Department will take advantage of financial resources available for the recruitment and retention of a diverse student body, faculty and staff.
5. Each Departmental Search Committee must actively pursue qualified minority and women candidates when positions are available.
6. The Department should promote and encourage interaction with established diverse disciplines (e.g. African American, Asian, Hispanic and Women's Studies programs).
7. Encourage the recognition of scholarly activity that may not fit traditional agriculture models.
8. The Department will seek to recruit undergraduate and graduate students from minority, under-represented and non-traditional agricultural areas (e.g. urban populations).
9. The Department will seek to recruit undergraduate students from minority, non-traditional agriculture areas and from under-represented groups for internships and work-study or student worker positions.
10. The Department will enhance the recruitment of doctoral students for the Lyman T. Johnson Graduate Fellowship.

Key Indicators, by 2014 the Department will have:

1. Sought qualified minority candidates for faculty and staff vacancies, graduate assistants and post-doctoral scholars.
2. Continued the inclusion of a diversity-related seminar that is held at least once yearly as part of the regular departmental seminar series.
3. Partnered with one or more 1890's land-grant institutions for recruitment of graduate students.

GOAL 5

Improve the Quality of Life for Kentuckians through Extension, Outreach and Service

Issues in the animal and food industries have created an unprecedented demand for knowledge- and research-based educational programs applicable to the needs of all Kentuckians. Economic development, leadership development, nutrition and health issues, opportunities for youth, and a rapidly changing agricultural landscape in Kentucky require a vital, progressive and responsive Animal and Food Sciences Cooperative Extension Service.

Most Significant Challenges

1. Ag Development Board funds have been critical to the success of Animal and Food Sciences Extension programs for over 5 years. These funds have become increasingly more limited and may expire in the near future. Alternative funding, alternative delivery methods or selective downsizing of programs will likely become necessary.
2. Adapting to new technologies available in the college for delivery of programs. This challenge is two-fold: difficult for Extension personnel to adapt to new technology; acceptance by some clientele audiences is not evident.
3. The college has implemented a requirement that newly hired Extension agents must complete their Master's degree. There are currently few opportunities for agents to take graduate level courses in Animal and Food Sciences and there are no graduate level distance learning courses in Animal and Food Sciences.
4. Operating funds for Extension and applied research becomes increasingly limited. Reliance on extramural sources necessarily increases. Opportunities for these alternative funding mechanisms are limited and extremely competitive.
5. In some species, increased concentration has led to sparse producer populations within individual counties. As a result, county level programming efforts are not effective use of resources in many cases. Regional programming increases travel distances for clientele and requires more coordination.

Strategies

1. Continue the pursuit of extramural funding from a variety of sources. In particular, the USDA-AFRI integrated extension and research grants provide new opportunities.
2. Sustain traditional Extension strengths while offering innovative new programs to serve increasingly diverse stakeholders.
3. Maintain and establish new Extension and outreach partnerships within and outside UK.
4. Increase the deployment of new information technologies such as eXtension, YouTube, electronic distribution lists, and enhanced web effectiveness.
5. Enhance training and support for outreach personnel statewide.
6. Work to develop courses/opportunities in Animal and Food Sciences for county educators to pursue graduate degrees.
7. Establish clearly understood measures to assess and communicate the impact of Extension programs.
8. Engage key constituencies – including commodity groups – to help the department achieve its objectives.

Key Indicators, by 2014 the Department will have:

1. Enhanced and refined Extension section of the Animal and Food Sciences website; tracked users through online tracking device.
2. Sustained current level of Extension educator training sessions and number trained.

3. Increased grantsmanship from sources other than the Ag Development Board. This will be evidenced by numbers of proposals submitted and funded and total funding amount.
4. Sustained departmental contacts at or above the current level.

Animal and Food Sciences

Appendix II

2005 – 2010 Peer-Reviewed Publications

Animal and Food Sciences: Publications 2005 - 2010

2005

~ Books and Book Chapters

Cromwell, G.L. Phosphorus Nutrition of Swine. pp. 607-634. In: Phosphorus: Agriculture and the Environment (J. T. Sims and A. N. Sharpley, Editors) American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, WI. 2005.

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Zheng, Y., M. Toborek, and B. Hennig. 2010. Epigallocatechin gallate-mediated protection against tumor necrosis factor- α -induced monocyte chemoattractant protein-1 expression is heme oxygenase-1 dependent. *Metabolism* 59(10):1528-35.

Zhong, Y., B. Hennig, and M. Toborek. 2010. Intact lipid rafts regulate HIV-1 Tat protein-induced activation of the Rho signaling and upregulation of p-glycoprotein in brain endothelial cells. *Journal of Cerebral Blood Flow & Metabolism* 30(3):522-33.

** In addition, members of the department published 84 abstracts.*

Animal and Food Sciences

Appendix III

2005 – 2010 Grants and Contracts

Animal and Food Sciences Extramural Funding 2005-2010

2005

Total—\$5,249,869

Brain Endothelial Cell TNF and Tat-Induced Cell Injury, National Institute of Mental Health, \$253,400—*Hennig, B.*

Continuous Health Monitoring and Lifetime Tracking of Beef Cattle, Eastern Kentucky University, \$694,923—*Vanzant, E., Akers, J., Carter, C., Cox, N.*

Editor of the Journal of Nutritional Sciences, Elsevier Science Inc., \$916,863—*Hennig, B.*

Hexanal Synthesis in Isolated Soy Proteins, Cooperative State Research Education and Extension, \$198,089—*Boatright, W.*

National Beef Cattle Evaluation Consortium, Cornell University, \$50,000—*Bullock, K.*

Nutrient Utilization in the Dog, Hills Pet Nutrition Inc., \$115,000—*Harmon, D.*

Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$2,162,704—*Hennig, B., Bastin, S., Gaetke, L.*

Quality Attribute Characterization of Beef Long-Term Muscles, National Cattlemen's Beef Association, \$15,956—*Alderton, A., Mikel, W., Xiong, Y.*

Rural Health Bioterrorism and Emergency Preparedness, University of Louisville, \$491,528—*Henning, J.C., Hustedde, R.J., Nesmith, W.C., Newman, M.C., Priddy, K.T., Scharko, P.B., Vincelli, P.*

Shared Faculty Position with CSREES/USDA, Cooperative State Research Education and Extension, \$45,000—*Cromwell, G.*

Tat-Mediated Brain Endothelial Cell Dysfunction, National Institute of Neurological Disorders and Stroke, \$286,406—*Hennig, B.*

Understanding How Chlortetracycline Improves the Carcass Quality of Finishing Beef Cattle Project (CTC Project), Kentucky Cattlemen's Association, \$20,000—*Matthews, J., Bullock, K., McLeod, K.*

2006

Total—\$4,859,567

Alternative Uses of Methyl Bromide in Country Hams, Mississippi State University, \$19,000—*Rentfrow, G.*

Analyzing Production Systems to Improve the Marketability of Kentucky Goats, Kentucky Department of Agriculture, \$21,048—*Hutchens, T., Harmon, R.*

Applied Beef Production Practices, Kentucky Beef Network, \$100,000—*Bullock, K., Anderson, L., Wilkerson, E.*

Editor of the Journal of Nutritional Sciences, Elsevier Science Inc., (\$568,100)—*Hennig, B.*

Effect of Concentrate Form and Composition on Exercising Horses, Cooperative Research Farms, \$43,098—*Lawrence, L.*

Effects of Feed Additives and Processing on *in vitro* Digestibility, Cooperative Research Farms, \$13,824—*Lawrence, L.*

Endocrine Regulation of Estrus Expression in Dairy Cows, Department of Agriculture, \$97,492—*Silvia, W.*

Exploring Small Plant Variation in the Application of Standardized Pathogen Control Used in Beef Slaughter and Processing Food Safety Consortium for Small and Very Small Meat Processors, University of Nebraska, \$36,734—*Newman, M., Rentfrow, G.*

Integrated Resource Management, Kentucky Beef Network, \$200,500—*Anderson, L., Bullock, K., Burris, W.*

Master Cattlemen Program, Kentucky Cattleman's Association, \$258,100—*Burris, W., Anderson, L., Henning, J.*

Master Grazer Educational Programming, Kentucky Beef Network, \$166,600—*Amaral-Phillips, D., Burris, W., Johns, J., Lacefield, G., Scharko, P., Smith Jr., S.*

National Beef Cattle Evaluation Consortium, Cornell University, \$60,000—*Bullock, K.*

Nutrient Utilization in the Dog, Hills Pet Nutrition Inc., \$150,880—*Harmon, D., McLeod, K.*

Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$2,313,867—*Hennig, B., Bastin, S., Gaetke, L.*

Polycyclic Aromatic Hydrocarbon-Medicated STAT Signaling and Implications in Vascular Inflammation, American Heart Association, \$21,000—*Hennig, B., Oesterling, E.*

Rural Health Bioterrorism and Emergency Preparedness, University of Louisville, \$750,151—*Hancock, J., Henken, K., Henning, J., Husband, A., Hustedde, R., Miller Jr, T., Newman, M., Priddy, K., Scharko, P., Vincelli, P., Welch, M.*

Tat-Mediated Brain Endothelial Cell Dysfunction, National Institute of Neurological Disorders and Stroke, \$275,373—*Hennig, B.*

The Alltech-UK Animal Nutrigenomics Alliance, Alltech Biotechnology Inc., \$900,000—*Matthews, J.*

2007

Total—\$3,303,162

Assessment of Distillers Dried Grains with Solubles (DDGS) from Ethanol Production on Performance and Carcass Quality of Growing-Finishing Swine, National Pork Board, \$52,000—*Cromwell, G.*

CSREES Shared Faculty Member, Cooperative State Research Education and Extension, \$25,000—*Cromwell, G.*

Essential Amino Acid and Fatty Acid Studies in Cats, Hills Pet Nutrition Inc., \$224,614—*McLeod, K.*

Polycyclic Aromatic Hydrocarbon-Medicated STAT Signaling and Implications in Vascular Inflammation, American Heart Association, \$21,000—*Hennig, B., Oesterling, E.*

Microbial and Cell Assay, Tribo Flow Separations LLC, \$5,000—*Hicks, C.*

Nutrient Utilization in the Dog, Hills Pet Nutrition Inc., \$299,750—*Harmon, D., McLeod, K.*

Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$2,250,176—*Hennig, B., Gaetke, L.*

Rural Health Bioterrorism and Emergency Preparedness, University of Louisville, \$31,456—*Hancock, J., Henken, K., Henning, J., Husband, A., Hustedde, R., Miller, T., Newman, M., Priddy, K., Scharko, P., Vincelli, P., Welch, M.*

Sponsored Student Stipend, Alltech Biotechnology Inc., \$30,000—*Lawrence, L.*

Student Sponsorship Agreement, Alltech Biotechnology Inc., \$30,000—*Harmon, D.*

Tat-Mediated Brain Endothelial Cell Dysfunction, National Institute of Neurological Disorders and Stroke, \$266,666—*Hennig, B.*

U.S. DAIR e-XNET—A National Dairy Information and Communication Resource, University of Nebraska, \$67,500—*Amaral-Phillips, D., McAllister, A.*

2008

Total—\$ 5,482,563

Animal Health Sensing and Surveillance: Early Disease Detection for Food Supply and Public Health Protection, National Institute for Hometown Security, \$906,841—*Vanzant, E., Carter, C.*

Characteristics and Eating Quality of Bacon, Sausage, and Boneless Chops from Finishing Pigs Fed Medium and High Levels of Distillers Dried Grains with Solubles (DDGS), National Pork Board, \$46,161—*Cromwell, G., Lindemann, M., Rentfrow, G.*

DAIReXNET: A National Dairy Information and Communications Resource, University of Nebraska, \$15,000—*Amaral-Phillips, D., McAllister, A.J.*

Developing Nutrient Requirement and Feeding Guidelines, Department of Agriculture, \$5,000—*Cromwell, G.*

Differentiating Sarcoplasmic Proteomes of Color-Stable and Color-Labile Beef Muscles, Cooperative State Research Education and Extension, \$99,999—*Suman, S.*

Evaluation of Potential Alternatives to Methyl Bromide Fumigation in Dry Cured Ham and Aged Cheese Production, Mississippi State University, \$14,446—*Rentfrow, G.*

Formation and Reactivity of Carbon-Centered Radicals in Isolated Soy Proteins, Cooperative State Research Education and Extension, \$424,884—*Boatright, W.*

Impact of Fibrous Feedstuff on Marker Appearance and Disappearance and on Nutrient Digestibility in Finishing Pigs, Agricultural Research Service, \$20,000—*Lindemann, M.*

Implications of Caveolae in Tat Signaling and Integrity of Brain Endothelium, National Institute of Mental Health, \$366,250—*Hennig, B.*

Integrated Resource Management, Kentucky Beef Network, \$215,500—*Anderson, L., Bullock, K., Burris, W.*

Interactive Effects of Concentrate Starch and Soluble Fiber Levels on the Glucose and

- Insulin Responses of Horses, Cooperative Research Farms, \$41,400—*Lawrence, L.*
- Investigating the Use of Ginger Extract to Improve Tenderness of Beef Biceps Femoris, Kentucky Beef Council, \$20,000—*Suman, S., Rentfrow, G., Xiong, Y.*
- Master Cattlemen Program, Kentucky Cattleman's Association, \$252,138—*Burris, W., Anderson, L., Henning, J.*
- Master Grazer Educational Program Part II, Kentucky Beef Network, \$177,791—*Amaral-Phillips, D., Burris, W., Johns, J., Lacefield, G., Scharko, P., Smith, S.*
- National Beef Cattle Evaluation Consortium, Cornell University, \$50,000—*Bullock, K.*
- Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$1,941,662—*Hennig, B., Gaetke, L.*
- Postdoctoral Fellow Sponsorship, Alltech Biotechnology Inc., \$103,425—*Pescatore, A.*
- Role of Protein Oxidation in Water-Binding and Hydration of Meat, Cooperative State Research Education and Extension, \$293,654—*Xiong, Y.*
- Rural Health Bioterrorism and Emergency Preparedness, University of Louisville, \$88,518—*Hancock, J., Henken, K., Henning, J., Husband, A., Hustedde, R., Miller, T., Newman, M., Priddy, K., Scharko, P., Vincelli, P., Welch, M.*
- Sensory Evaluation of Prawns from Different Genetic Strains, Kentucky State University, \$15,000—*Xiong, Y.*
- Student Sponsorship, Alltech Biotechnology Inc., \$26,500—*Cantor, A.*
- Student Sponsorship, Alltech Biotechnology Inc., \$30,000—*Harmon, D.*
- Student Sponsorship, Alltech Biotechnology Inc., \$30,000—*Lawrence, L.*
- Student Sponsorship, Alltech Biotechnology Inc., \$32,400—*Pescatore, A., Quant, A.*
- Tat-Mediated Brain Endothelial Cell Dysfunction, National Institute of Neurological Disorders and Stroke, \$265,994—*Hennig, B.*
- Development and Implementation of a High-Rise Swine Manure Composting Production Facility, Kentucky Governor's Office of Agricultural Policy, \$25,000—*Coffey, R.; Overhults, D.*
- Elanco Animal Health Clinical Research Study Agreements—UKYDH0802 and UKYDH0803, Elanco Animal Health, \$34,191—*Harmon, D.; McLeod, K.*
- Essential Amino Acid and Fatty Acid Studies in Cats, Hills Pet Nutrition Inc., \$224,614—*McLeod, K.*
- Implications of Caveolae in Tat Signaling and Integrity of Brain Endothelium, National Institute of Mental Health, \$347,938—*Hennig, B.*
- Methods of Restoring Carcass Firmness and Other Post-Harvest Traits in Finishing Pigs Fed a High Level of Distillers Dried Grains with Solubles (DDGS), National Pork Board, \$70,116—*Cromwell, G.; Lindemann, M.; Rentfrow, G.*
- National Beef Cattle Evaluation Consortium, Cornell University, \$47,500—*Bullock, K.*
- Nutrient Utilization in the Dog, Hills Pet Nutrition Inc., \$299,750—*Harmon, D.; McLeod, K.*
- Nutrition and Superfund Chemical Toxicity Administrative Supplement, National Institute of Environmental Health Sciences, \$221,038—*Hennig, B.*
- Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$1,999,906—*Hennig, B.; Gaetke, L.*
- Nutrition and Superfund Chemical Toxicity Summer Supplement, National Institute of Environmental Health Sciences, \$153,110—*Hennig, B.*
- Past, Present, and Future: The Nutritional Value of Oats in Horse Feeds, Prairie Oat Growers Association, \$29,554—*Lawrence, L.*
- Student Sponsorship, Alltech Biotechnology Inc., \$57,466—*Cantor, A.*
- A. Student Sponsorship, Alltech Biotechnology Inc., \$30,000—*Harmon, D.*
- Student Sponsorship, Alltech Biotechnology Inc., \$30,000—*Lawrence, L.*
- Student Sponsorship, Alltech Biotechnology Inc., \$32,400—*Pescatore, A.; Quant, A.*
- Tat-Mediated Brain Endothelial Cell Dysfunction, National Institute of Neurological Disorders and Stroke, \$265,301—*Hennig, B.*
- The Use of Natural Antimicrobials to Mitigate Biological Threat Agents in High-Risk Foods, National Institute for Hometown Security,

2009

Total—\$5,216,813

DAIReXNET: A National Dairy Information and Communications Resource, University of Nebraska, \$15,000—*Amaral-Phillips, D.; McAllister, A.*

\$1,333,929—*Newman, M.; O’Leary, J.; Rentfrow, G.; Xiong, Y.*

2010

Total- \$4,198,693

An Integrated Approach to Improving Dairy Cow Fertility, University of Wisconsin, \$17,948—*Amaral-Phillips, D.*

Changes in Gastrointestinal Flora in Response to Antibiotic Therapy and Dietary Intervention, Kentucky Horse Racing Commission, \$53,305—*Lawrence, L.*

DAIReXNET: A National Dairy Information and Communications Resource, University of Nebraska, \$15,000—*Amaral-Phillips, D.; McAllister, A.*

Food Production Research and Development for Kentucky’s Small Food Processors, Kentucky Governor’s Office of Agricultural Policy, \$263,654—*Rentfrow, G.; Hu, W.; Newman, M.; Woods, T.*

Impact of Differing Forms of Monensin on Ruminant Volatile Fatty Acid Profiles in Steers Fed a Medium Concentrate Diet, Elanco Animal Health, \$24,611—*Harmon, D.; McLeod, K.*

Implications of Caveolae in Tat Signaling and Integrity of Brain Endothelium, National Institute of Mental Health, \$347,938—*Hennig, B.*

Improving Fertility during Heat Stress in Lactating Dairy Cows, University of Florida, \$60,000—*Amaral-Phillips, D.*

LAD and Monensin *in vitro* VFA Study, Elanco Animal Health, \$26,653—*Harmon, D.; McLeod, K.*

Lysine Requirements in Yearling Horses Determined Using Indicator Amino Acid Oxidation, National Institute of Food and Agriculture, \$149,707—*Urschel, K.*

Master Cattleman Program, Kentucky Cattlemen’s Association, \$190,200—*Burris, W.; Anderson, L.; Henning, J.*

National Beef Cattle Evaluation Consortium, Cornell University, \$50,000—*Bullock, K.*

Nutrigenomics Applied to Meat Science: Understanding the Impact of Alltech Antioxidant Nutrients on the Quality and Storage Stability of Chicken Meat, Alltech Biotechnology Inc., \$37,008—*Xiong, Y.*

Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$2,640,121—*Hennig, B.; Gaetke, L.*

Post Doctoral Fellow Scholarship: Rossi, Alltech Biotechnology Inc., \$53,125—*Pescatore, A.*
Protein Metabolism in Old Horses: Effects of Inflammation and Glucocorticoid Excess, Morris Animal Foundation, \$108,000—*Urschel, K.*

Student Sponsorship, Alltech Biotechnology Inc.; \$30,000—*Harmon, D.*

Student Sponsorship, Alltech Biotechnology Inc.; \$30,000—*Lawrence, L.*

Student Sponsorship, Alltech Biotechnology Inc.; \$32,400—*Pescatore, A.*

The Effects of Creep Feeding Pre-Weaning Foals on Whole Body Protein Synthesis Determined Using Isotope Infusion and Stochastic Analysis, Waltham Centre for Pet Nutrition, \$19,915—*Urschel, K.*

The Use of Natural Antimicrobials to Mitigate Biological Threat Agents in High Risk Foods, National Institute for Hometown Security, \$49,068—*Newman, M.; O’Leary, J.; Rentfrow, G.; Xiong, Y.*

Animal and Food Sciences

Appendix IV

Annual Reports



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2008-2009 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences**

Degree: **BSA**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies										
Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	To recruit and subsequently educate highly qualified students through a balanced program of: a) general University Studies, designed to enhance understanding of the physical and cultural world to which the Animal Industries contribute; and b) specialized courses in Animal Sciences and related professional areas.	Maintain enrollment of majors in animal science consistent with the anticipated continuing shift of many students to the new Equine Initiative program.	Enrollment of Animal Science Majors for Fall 2009 is 210 students, down from 235 students in fall 2008 and 239 for 2007. However, numbers of students taught remain high due to continued growth in the EQSM major which is heavily based in animal sciences. A total of 114 EQSM students enrolled in fall of 2009. 1) We anticipate scholarships will be close to \$90,000 to students in the major as in past years from the College of Agriculture. The struggling economy will likely result in reduced scholarships next year. This does not reflect university awards and scholarships from sources outside the College of Ag. 2) We continue to encourage students to utilize the UK Career Center. (Ms. Charlotte Anderson addresses our ASC 205 class each semester.)	1. Review teaching, assessment and recruitment issues in faculty retreat in December. 2. Continue to encourage students to participate in student organizations and campus events such as Career Day. 3. Encourage students to apply for scholarships available through the college.	Instructional	Prepare Students	4	5	0	0
02	Provide modern teaching facilities, techniques, and a relevant curriculum to facilitate the development of highly qualified professionals.	Develop assessment criteria to be used beginning in 2010. Maintain teaching facility at University farm and classrooms in Garrigus building in face of increasing budgetary	Audio visual equipment has been maintained in all smart classrooms in Garrigus. An ad hoc committee to develop assessment criteria has prepared assessment goals and metrics to be approved by the faculty at our 2009 retreat.	1. Continue to encourage faculty to develop skills for use of electronic equipment including use of APEX for advising. 2. Continue to encourage faculty to participate in advising and to distribute advisees more evenly so that more faculty are broadly aware of undergraduate issues related to our curriculum. 3. Continue support of efforts to replace the dangerous 15 passenger vans with small buses designed for	Instructional	Prepare Students	3	4	9	0

	challenges.	safer transport of students for field trips. Currently, class size in some courses is being limited to 11 students simply because that's the upper limit which can travel in a 12 passenger van.							
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UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2008-2009 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences**

Degree: **Food Science BS**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit Mission: To educate undergraduate and graduate students in preparation for food-related careers in industry, academia, or government; 2) to conduct research that transforms commodities, ingredients, or foods to value-added products, and that improves food quality and safety; 3) to provide educational and training programs and information of value to the food industry, consumers, and general public.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Develop a highly visible undergraduate program in food science.	Seek to enhance IFT accredited BS degree program in food science; seek to increase the visibility of the food science program; increase scholarship fund by 5%; increase undergraduate enrollment by 5%; ensure quality student professional and social activities; and have 100% professional placement for student upon graduation.	Submission for renewal of Institute of Food Technologists (IFT) accreditation completed in 2009. To enhance food science program, new course FSC 430 (Sensory Evaluation) was developed and approved by department, college and university in 2009. The course will be taught the first time in the 2010 fall semester. Also, FSC 642 (Food Pigments) approved as graduate course in 2009. Writing requirement added to FCS 306 in 2009. Student assessment methods established & approved by IFT as part of accreditation in 2009. Recruitment efforts have added 7 more students (>30% increase over 2008) to food science this fall. Scholarship development continues on track with over \$7,000 added to principle amounts of Clair L Hicks and Food Science Scholarship funds which exceeded goal of 5%. All May graduates are now employed or in graduate school, meeting the 100% placement goal. A 2009 survey of past students was conducted to determine the success of our students and program assessment.	Student recruitment remains a top priority. Better recruiting aids were developed and given to Agriculture ambassadors to bring in more students to Foods Science. Work with the State Agriculture board to develop course materials for high school curriculum is starting to show some impact on recruiting efforts. Student faculty interactions remains a high priority to enhance retention. Students are encouraged to see their advisors regularly and participate in club activities.	Instructional	Enhance Stature	1	2	4	0
02	Enhance quality of teaching provided to students and effectiveness of student learning.	Program assessment procedures were implemented in 2009. Class assessment is conducted at the end of each semester. Student assessment are conducted in FSC 536 (capstone course). Post graduate assessments will be conducted periodically.	All instructor have attended at least one UK or professional teaching seminar or workshop during the 2009 academic year. Some freshman and all sophomores and juniors that want summer internships have been placed in paid food manufacturing or Research and Development related internships. All food science laboratories provide students with hands on experiences and internet opportunities. Most lab courses now charge a laboratory fee. These fees have augmented the quality of the material that can be presented in these laboratories. Acquisition of current processing equipment remains a problem within our processing laboratories.	Faculty interaction with students is at an all time high providing interaction at both the teaching and social levels. Students have responded to this interaction in positive ways. Food Science students are more engaged than in the past.	Instructional	Prepare Students	4	3	8	17



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2008-2009 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences**

Degree: **PhD**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Graduates will be capable of professional and/or scholarly contributions that advance the discipline.	*Number of graduate refereed publications or book chapters will be at least 35% of the number of students currently enrolled. *Number of oral or poster presentations at national or regional conferences will be at least 65% of the number of students enrolled.*20% of all doctoral students on assistantship will be supported by external grants.	Based on number, 30% of graduate students published papers in refereed journals. Based on the number of presentations, 64% gave presentations at scientific meetings. 86% of Ph.D. students receive support outside the department, i.e. extramural funding or fellowships.	Goals will be viewed to insure continued success of graduates.	Research	Prepare Students	6	7	0	0
02	Graduates will demonstrate academic, technical, and/or professional proficiency in their discipline.	60% of all graduate students will maintain a GPA of 3.6 or greater; 65% of Ph.D. graduates will obtain postdoctoral or faculty positions at major colleges or universities.	83% of graduate students are maintaining a 3.5 or better GPA and 86% have a 3.4 or better GPA. 100% of previous years students are employed or have received offers in their discipline.	This area will be reviewed and emphasized in departmental student selection.	Instructional	Prepare Students	6	7	0	0
03	Graduates will be successful in securing employment in their discipline.	Graduate School Doctoral Placement Survey: *80% of all doctoral graduates will have obtained employment or be in postdoctoral positions within six months of graduation. *25% of all doctoral graduates will have obtained tenure-track positions at a college or university. Master's Survey: *85% of Master's graduates will have obtained discipline-related employment within six months of graduation.	100% of Ph.D graduates were employed in post-doc or permanent positions within 6 months. 100% of M.S. graduates have discipline related jobs within 6 months of graduation.	Department will monitor to insure success of graduates.	Overall	Prepare Students	6	7	0	0



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM**Annual Review Report 2008-2009 APPROVED**Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Research)**Degree: **N/A**Data Entry **Robin Notton**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Increase departmental extramural research support.	Maintain research proposal submission at 1.5 per research FTE per year. Increase extramural funding by 5% each year (averaged over 3 years).	The number of proposals submitted increased from 15 (FY 07) to 22 (FY 08). The number of awards increased from 12 (FY 07) to 17 (FY 08). Total yearly awards averaged \$6.6 M (FY 06-08) compared to \$4.7 (FY 03-05), a 40% increase.	Proposal submissions will be at least 1.5 per research FTE per year. Average annual growth in extramural support in a 3-year span will be 5%	Research	Expand Research	14	0	0	0
02	Maintain a nationally recognized graduate research and training program.	Maintain graduate student enrollment near 50 students. Increase average student stipends by 10%.	Student numbers maintained at 47 and postdoctorals at 6 in FY 08.	Faculty are continually encouraged to offer competitive stipends and recruit high quality students.	Research	Expand Research	6	7	0	0
03	Enhance visibility of departmental research programs.	Maintain number of published articles at or above 2.5 per research FTE each year.	Number of published journal articles increased from 49 (FY 07) to 58 (FY 08), an 18% increase. Average number of publications per research FTE in FY 08 was 3.5.	Will maintain publication rate at least 2 papers per research FTE.	Research	Enhance Stature	15	12	9	0
04	Increase multi-disciplinary research activities.	Increase the number of formal collaborative research projects. Maintain number of visiting scholars at 5 per year.	Collaborative awards totaled \$1.8 M for FY 08. More than 50% of the publications were multi-authored from different disciplines. In FY 08, the department hosted 6 international visiting scholars.	Chair is working with College administration to identify additional collaborative relationships. Chair regularly advises faculty of potential opportunities.	Research	Expand Research	14	6	15	12



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2008-2009 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences (Extension)**

Degree: **N/A**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	a) Improve the competitive position and profitability of animal agriculture in Kentucky by educating producers and processors of animal products in the selection, understanding and application of technology suited to their specific resources. b) Provide extension education in animal agriculture technology for youth and young adults to fully develop the human capital of rural Kentucky. c) Improve the nutrition, diet and health of Kentucky citizens by assisting targeted clientele in applying technology to increase the quality, safety and economic value of foods of animal origin.	Evaluate: a) Methods of delivery of extension education programs. b) Level of extramural funding for extension education. c) Level of multi-state and interdisciplinary involvement in extension programming. d) Level of paraprofessional support for extension faculty. e) The quality and quantity of traditional extension publications on a quadrennial basis.	Twelve paraprofessionals are working in ASC extension programs with 7 FTE on extramural funds. Extension grants were \$1.85 million in FY09. Formal evaluation of extension presentations continue. Impact of extension programs continue to be assessed. Intensive training of producers was a result of Master Cattlemen, Advanced Master Cattlemen, Master Grazer, Horse College, Dairy Seminars, and Goat Food Safety Training Field Day and Seminars. ASC cooperates with several other departments and KSU in these programs. Developing a curriculum-based educational program for ANR agents and continue to provide in-service education for agents. Continued leadership in e-Xtension in beef, equine and dairy.	We will continue to evaluate programs to assure optimum use of resources. These assessments indicate ASC investments are having significant impact. Continue development of curriculum-based training. Level of extramural funding remains high.	Service	Quality of Life	8	12	13	17



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2007-2008 APPROVED

Area: Provost

College/Unit: College of Agriculture

Department: Animal Sciences

Degree: BSA

Data Entry Robin Notton

Approver Robert Harmon

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	To recruit and subsequently educate highly qualified students through a balanced program of: a) general University Studies, designed to enhance understanding of the physical and cultural world to which the Animal Industries contribute; and b) specialized courses in Animal Sciences and related professional areas.	Maintain enrollment of majors in animal science consistent with the anticipated shift of many students to the new Equine Initiative program.	Enrollment of Animal Science Majors for Fall 2008 is stable with 235 students compared with 239 for 2007. However, numbers of students taught are increasing dramatically. For example, ASC 101 has 6 sections and 169 students compared with 5 sections totaling 123 for fall 2007. This reflects an influx of students in the new equine science & management program which is heavily based in animal sciences. 1) We anticipate scholarships will be close to \$90,000 as in past years from the College of Agriculture. This does not reflect university awards and scholarships from sources outside the College of Ag. 2) We continue to encourage students to utilize the UK Career Center. (Dr. Julie Johnson addresses our ASC 205 class each semester.)	1. Review teaching, assessment and recruitment issues in faculty retreat in December. 2. Continue to encourage students to participate in student organizations and campus events such as Career Day. 3. Encourage students to apply for scholarships available through the college.	Instructional	Prepare Students	4	5	0	0
02	Provide modern teaching facilities, techniques, and a relevant curriculum to facilitate the development of highly qualified professionals.	Develop teaching facility at University farm and update at least one classroom in Garrigus building. Recruit at least one faculty member dedicated to the undergraduate program.	1. A wall display for feed samples has been installed outside room B-52 of Garrigus. 2. Mr. Kevin Veach has developed websites on which faculty may post video recordings of student presentations or other classroom materials.	1. Continue to encourage faculty to develop skills for use of electronic equipment including use of APEX for advising. 2. Continue to encourage faculty to participate in advising and to distribute advisees more evenly so that more faculty are broadly aware of undergraduate issues related to our curriculum. 3. Continue support of efforts to replace the dangerous 15 passenger vans with small buses designed for	Instructional	Prepare Students	3	4	9	0

				safer transport of students for field trips. Currently, class size in some courses is being limited to 11 students simply because that's the upper limit which can travel in a 12 passenger van.					
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UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2007-2008 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences**

Degree: **Food Science BS**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit To educate undergraduate and graduate students in preparation for food-related careers in industry, academia, or government; 2) to conduct research that transforms commodities, ingredients, or foods to value-added products, and that improves food quality and safety; 3) to provide educational and training programs and information of value to the food industry, consumers, and general public.

Unit Goals and Specific Strategies										
Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Develop a highly visible undergraduate program in food science.	Seek to enhance IFT accredited BS degree program in food science; seek to increase the visibility of the food science program; increase scholarship fund by 5%; increase undergraduate enrollment by 5%; ensure quality student professional and social activities; and have 100% professional placement for student upon graduation.	A new course FSC 430 (Sensory Evaluation) has been approved at college level. It is anticipated it will be approved on a University level by 2009 and scheduled to be taught for the first time in 2010. This course will fill a need in course content of undergraduate students and maintain department's accreditation with the Institute of Food Technologists (IFT). Kentucky science teachers have been sent information about food science from IFT which should aid in recruitment. Visibility of the food science program remains problematic. Enrollment goals were not met. Principle investments in the Bluegrass IFT and Clair L. Hicks scholarships increased by 3 and 20%, respectively, which exceeded the 5% goal. Undergraduate enrollment dropped to 14, thus enrollment targets were not met. The best undergraduate recruiting tools are the college ambassadors program and food science website. Graduate placement for May 2006 graduates was 100%. All starting salaries were greater than \$45,000.	Student recruitment remains a top priority. This year undeclared majors will be contacted to see if some of these students are interested in Food Science. Student faculty interactions which enhance student retention will remain a top priority.	Instructional	Enhance Stature	1	2	4	0
02	Enhance quality of teaching provided to students and effectiveness of student learning.		All instructors have attended at least one UK or professional teaching seminar or teaching workshop during the last year. Most interested Sophomores, and all interested Juniors and Seniors had paid internships at major food manufacturers or suppliers. All food science laboratories provide students with hands on laboratory experiences and internet opportunities. A number of lab courses now charge a lab fee. Acquisition of current processing equipment remains a problem within our processing laboratories.	Faculty interaction with students is at an all time high providing interaction at both the teaching and social levels. Students have responded to this interaction in positive ways. Food Science students are more engaged than in the past.	Instructional	Prepare Students	4	3	8	17



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2007-2008 APPROVED

Area: Provost

College/Unit: College of Agriculture

Department: Animal Sciences

Degree: PhD

Data Entry Robin Notton

Approver Robert Harmon

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Graduates will be capable of professional and/or scholarly contributions that advance the discipline.	*Number of graduate refereed publications or book chapters will be at least 35% of the number of students currently enrolled. *Number of oral or poster presentations at national or regional conferences will be at least 65% of the number of students enrolled. *20% of all doctoral students on assistantship will be supported by external grants.	Based on number, 46% of graduate students published papers in refereed journals. Based on the number of presentations, 146% gave presentations at scientific meetings. 86% of Ph.D. students receive support outside the department, i.e. extramural funding or fellowships.	Goals will be viewed to insure continued success of graduates.	Research	Prepare Students	6	7	0	0
02	Graduates will demonstrate academic, technical, and/or professional proficiency in their discipline.	60% of all graduate students will maintain a GPA of 3.6 or greater; 65% of Ph.D. graduates will obtain postdoctoral or faculty positions at major colleges or universities.	69% of graduate students are maintaining a 3.5 or better GPA and 77% have a 3.4 or better GPA while 65% of Ph.D. students have better than a 3.6 GPA. 100% of previous years students are employed or have received offers in their discipline.	This area will be reviewed and emphasized in departmental student selection.	Instructional	Prepare Students	6	7	0	0
03	Graduates will be successful in securing appropriate employment in their discipline.	Graduate School Doctoral Placement Survey: *80% of all doctoral graduates will have obtained employment or be in postdoctoral positions within six months of graduation. *25% of all doctoral graduates will have obtained tenure-track positions at a college or university. Master's Survey: *85% of Master's graduates will have obtained discipline-related employment within six months of graduation.	100% of Ph.D graduates were employed in post-doc or permanent positions within 6 months. 100% of M.S. graduates have discipline related jobs within 6 months of graduation.	Department will monitor to insure success of graduates.	Overall	Prepare Students	6	7	0	0



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM**Annual Review Report 2007-2008 APPROVED**Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Research)**Degree: **N/A**Data Entry **Robin Notton**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
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01	Increase departmental extramural research support.	Maintain research proposal submission at 1.5 per research FTE per year. Increase extramural funding by 5% each year (averaged over 3 years).	The number of proposals submitted increased from 15 (FY 07) to 22 (FY 08). The number of awards increased from 15 (FY 07) to 18 (FY 08). Total yearly awards averaged \$6.5 M (FY 05-08) compared to \$3.4 (FY 01-04), a 91% increase.	Proposal submissions will be at least 1.5 per research FTE per year. Average annual growth in extramural support in a 3-year span will be 5%	Research	Expand Research	14	0	0	0
02	Maintain a nationally recognized graduate research and training program.	Maintain graduate student enrollment near 50 students. Increase average student stipends by 10%.	Student numbers maintained at 47 and postdoctorals at 6 in 2008.	Faculty are continually encouraged to offer competitive stipends and recruit high quality students.	Research	Expand Research	6	7	0	0
03	Enhance visibility of departmental research programs.	Maintain number of published articles at or above 2.5 per research FTE each year.	Number of published journal articles increased from 31 (2006) to 51 (2007), a 65% increase.	Will maintain publication rate at least 2 papers per research FTE. For year 2007, it was 3.1 papers per FTE.	Research	Enhance Stature	15	12	9	0
04	Increase multi-disciplinary research activities.	Increase the number of formal collaborative research projects.	Collaborative awards totaled \$1.8 M for FY 08. More than 50% of the publications were multi-authored from different disciplines. In 2008, the department has hosted 6 international visiting scholars.	Chair is working with College administration to identify additional collaborative relationships. Chair regularly advises faculty of potential opportunities.	Research	Expand Research	14	6	15	12



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2007-2008 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences (Extension)**

Degree: **N/A**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	a) Improve the competitive position and profitability of animal agriculture in Kentucky by educating producers and processors of animal products in the selection, understanding and application of technology suited to their specific resources. b) Provide extension education in animal agriculture technology for youth and young adults to fully develop the human capital of rural Kentucky. c) Improve the nutrition, diet and health of Kentucky citizens by assisting targeted clientele in applying technology to increase the quality, safety and economic value of foods of animal origin.	Evaluate: a) Methods of delivery of extension education programs. b) Level of extramural funding for extension education. c) Level of multi-state and inter-disciplinary involvement in extension programming. d) Level of paraprofessional support for extension faculty. e) The quality and quantity of traditional extension publications on a quadrennial basis.	Twelve paraprofessionals are working in ASC extension programs with 7 FTE on extramural funds. Extension grants were \$1.67 million in FY08. Formal evaluation of extension presentations continue. Impact of extension programs continue to be assessed. Intensive training of producers was a result of Master Cattlemen, Advanced Master Cattlemen, Master Grazer, Horse College, Dairy Seminars, and Goat Field Day and Seminars. ASC cooperates with several other departments and KSU in these programs. Developing a curriculum-based educational program for ANR agents and continue to provide in-service education for agents. Continued leadership in e-Xtension in beef, equine and dairy.	We will continue to evaluate programs to assure optimum use of resources. These assessments indicate ASC investments are having significant impact. Continue development of curriculum-based training. Level of extramural funding remains high.	Service	Quality of Life	8	12	13	17



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

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Annual Review Report 2006-2007 APPROVED

Area **Provost**
 Department **Animal Sciences**
 Data Entry **Robin Notton**
 Mission Last Modified By **Robert Harmon**

College/Unit **College of Agriculture**
 Degree **BSA**
 Approver **Robert Harmon**

Objective Last Modified By **Robert Harmon**

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:		
					UK Mission	UK Goal	UK Measures of Progress
01	To recruit and subsequently educate highly qualified students through a balanced program of: a) general University Studies, designed to enhance understanding of the physical and cultural world to which the Animal Industries contribute; and b) specialized courses in Animal Sciences and related professional areas.	Maintain enrollment of majors in animal science consistent with the anticipated shift of many students to the new Equine Science and Management program.	Fall 2007 enrollment appears to be down from 2006. Of the 289 students enrolled in ASC classes, 191 are ASC majors and 35 are enrolled in individualized curricula. Additional ASC majors may not be enrolled in any ASC course. 1) We anticipate scholarship awards to be approximately \$90,000, not including University awards to students. Many of our students participate in the Honors program. 2) Students appreciate the changes initiated in the new curriculum in fall 2005. For example, ASC 408G which had minimal enrollment for many years, has received strong reviews from students. 3) Students are encouraged to develop resumes and to utilize the University Career Center. 12 faculty are currently advising students. Internships, experiential education, and international experiences are encouraged. The curriculum	1. Review teaching, assessment and recruitment issues in faculty retreat in December. 2. Continue to encourage students to participate in student organizations and campus events such as Career Day. 3. Encourage students to apply for scholarships available through the college.	Instructional	2. Prepare Students	4 5 0 0

committee is evaluating the existing curriculum and an assessment committee has initiated development of a strategy for curricular assessment.

02 Provide modern teaching facilities, techniques, and a relevant curriculum to facilitate the development of highly qualified professionals.

Develop teaching facility at University farm and update at least one classroom in Garrigus Building. Recruit at least one faculty member dedicated to the undergraduate program.

1. A new teaching facility at the Equine Unit has been completed and has enhanced the teaching program. 2. A wall display for feed samples has been installed outside room B-52 of Garrigus. 3. Mr. Kevin Veach has developed websites on which faculty may post video recordings of student presentations or other classroom materials. 4. Two new faculty have been hired in 2007; one with 70% and the other with 25% teaching appointment.

1. Continue to encourage faculty to develop skills for use of electronic equipment. 2. Continue to encourage faculty to participate in advising and to distribute advisees more evenly so that more faculty are broadly aware of undergraduate issues related to our curriculum. 3. Support efforts to replace the dangerous 15 passenger vans with small buses designed for safer transport of students for field trips. Currently class size in some courses is being limited to 11 students simply because that's the upper limit which can travel in a 12 passenger van.

Instructional 2. 3 4 9 0
Prepare Students

2 objective(s) found.

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UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

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Annual Review Report 2006-2007 APPROVED

Area	Provost	College/Unit	College of Agriculture
Department	Animal Sciences	Degree	Food Science BS
Data Entry	Robin Notton	Approver	Robert Harmon
Mission Last Modified By	Robert Harmon	Objective Last Modified By	Robert Harmon

Unit Mission
 To educate undergraduate and graduate students in preparation for food-related careers in industry, academia, or government; 2) to conduct research that transforms commodities, ingredients, or foods to value-added products, and that improves food quality and safety; 3) to provide educational and training programs and information of value to the food industry, consumers, and general public.

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[Go To View/Edit/Create Narrative Page](#)

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:			
					UK Mission	UK Goal	UK Measures of Progress	
01	Develop a highly visible undergraduate program in food science.	Seek to enhance IFT accredited BS degree program in food science; seek to increase the visibility of the food science program; increase scholarship fund by 5%; increase undergraduate enrollment by 5%; ensure quality student professional and social activities; and have 100% professional placement for student upon graduation.	The Food Science faculty has developed the course content for FSC 430 (sensory evaluation). This course is a key course to maintain accreditation with the Institute of Food Technologist (IFT). This course has been approved at the department level and is currently being considered for approval at the college level. Visibility of the Food Science program remains problematic. However, the IFT produced guidance information that was disseminated to all Kentucky high schools in 2007, which may be helpful. Scholarship funding increased by approximately \$12,000 in 2007, most of which was derived by the Bluegrass section of IFT. This funding met the goal of 2006. Graduate placement for 2007 remains at 100%. Average starting salaries exceeded \$50,000/year. The best student recruitment tool is the college's ambassador program and the Food Science web site.	Student recruitment remains a top priority. Student retention will hopefully improve as student/faculty interactions increase.	Instructional	1.	1 2 4 0	Enhance Stature
02	Enhance quality of teaching provided to		All instructors have attended at least one training session on advising, teaching, or seminar about teaching. Laboratory fees	Faculty interaction with students is at an all time high	Instructional	2.	4 3 8 17	Prepare Students

students and effectiveness of student learning.

have been assessed for some courses to enhance and maintain the quality of instruction in these courses. All Sophomores and Juniors that wanted an internship were able to be placed in an industrial internship. A few Freshman and Seniors also did internships. Acquisition of equipment for the teaching of processing and analytical laboratories remains a problem. More monies need to be found that can be used to purchase this type of equipment.

providing interaction at both the teaching and social levels. Students have responded to this interaction in positive ways. Food Science students are more engaged than in the past.

2 objective(s) found.

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UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

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Annual Review Report 2006-2007 APPROVED

Area **Provost**
 Department **Animal Sciences**
 Data Entry **Robin Notton**
 Mission Last Modified By **Robert Harmon**

College/Unit **College of Agriculture**
 Degree **PhD**
 Approver **Robert Harmon**
 Objective Last Modified By **Robert Harmon**

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:		
					UK Mission	UK Goal	UK Measures of Progress
01	Graduates will be capable of professional and/or scholarly contributions that advance the discipline.	*Number of graduate refereed publications or book chapters will be at least 35% of the number of students currently enrolled. *Number of oral or poster presentations at national or regional conferences will be at least 65% of the number of students enrolled. *20% of all doctoral students on assistantship will be supported by external grants.	49% of graduate students published papers in refereed journals. Based on the number of presentations, 97% gave presentations at scientific meetings. 86% of Ph.D. students receive support outside the department, i.e. extramural funding or fellowships.	Goals will be viewed to insure continued success of graduates.	Research	2. Prepare Students	6 7 0 0
02	Graduates will demonstrate academic, technical, and/or professional proficiency in their discipline.	60% of all graduate students will maintain a GPA of 3.6 or greater; 65% of Ph.D. graduates will obtain postdoctoral or faculty positions at major colleges or universities.	57% of graduate students are maintaining a 3.5 or better GPA and 67% have a 3.4 or better GPA while 71% of Ph.D. students have better than a 3.5 GPA. 100% of previous years students are employed or have received offers in their discipline.	This area will be reviewed and emphasized in departmental student selection.	Instructional	2. Prepare Students	6 7 0 0
03	Graduates will be successful in securing appropriate employment in	Graduate School Doctoral Placement Survey: *80% of all doctoral graduates will have obtained employment or be in postdoctoral positions within six months of graduation. *25% of all	100% of Ph.D graduates were employed in post-doc or permanent positions within 6 months. 100% of M.S. graduates have	Department will monitor to insure success of graduates.	Overall	2. Prepare Students	6 7 0 0

their discipline. doctoral graduates will have obtained discipline related jobs within
tenure-track positions at a college or 6 months of graduation.
university. Master's Survey: *85% of
Master's graduates will have obtained
discipline-related employment within
six months of graduation.

3 objective(s) found.

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UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2006-2007 APPROVED

Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Research)**Degree: **N/A**Data Entry **Robin Notton**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable

Mission: animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Increase departmental extramural research support.	Maintain research proposal submission at 1.5 per research FTE per year. Increase extramural funding by 5% each year (averaged over 3 years).	Total awards increased from 8.6 M (FY 06) to 10.1 M (FY 07).	Proposal submissions will be at least 1.5 per research FTE per year. Annual growth in extramural support will be 5% (average) over 3 years.	Research	3. Expand Research	14	0	0	0
02	Maintain a nationally recognized graduate research and training program.	Maintain graduate student enrollment near 50 students. Increase average student stipends by 10%.	Student numbers averaged 44 for 2004-2007 period.	Faculty are continually encouraged to offer competitive stipends. We continue to emphasize recruitment of high quality students.	Research	3. Expand Research	6	7	0	0
03	Enhance visibility of departmental research programs.	Maintain number of published articles at or above 2.5 per research FTE each year.	Published articles averaged 2.3 for 2004-2006 period.	Will maintain publication rate of at least 2 papers per research faculty FTE.	Research	1. Enhance Stature	15	12	9	0
04	Increase multi-disciplinary research activities.	Increase the number of formal collaborative research projects.	Collaborative awards increased from 4.1 M (FY 06) to 6.0 M (FY 07).	Chair is working with College administration to identify additional collaborative relationships. Chair regularly advises faculty of potential opportunities.	Research	3. Expand Research	14	6	15	12



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2006-2007 APPROVED

Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Extension)**Degree: **N/A**Data Entry **Robin Notton**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	a) Improve the competitive position and profitability of animal agriculture in Kentucky by educating producers and processors of animal products in the selection, understanding and application of technology suited to their specific resources. b) Provide extension education in animal agriculture technology for youth and young adults to fully develop the human capital of rural Kentucky. c) Improve the nutrition, diet and health of Kentucky citizens by assisting targeted clientele in applying technology to increase the quality, safety and economic value of foods of animal origin.	Evaluate: a) Methods of delivery of extension education programs. b) Level of extramural funding for extension education. c) Level of multi-state and interdisciplinary involvement in extension programming. d) Level of paraprofessional support for extension faculty. e) The quality and quantity of traditional extension publications on a quadrennial basis.	8.5 paraprofessionals are working in ASC extension programs with a 5.5 FTE on extramural funds. Extension grants were \$443,684 in FY07. Formal evaluation of extension presentations continue. Impact of extension programs continue to be assessed. Intensive training of producers was a result of Master Cattlemen, Advanced Master Cattlemen, Master Grazer, Horse College, Dairy Seminars, and Goat Field Day and Seminars. ASC cooperates with several other departments and KSU in these programs. Developing a curriculum-based educational program for ANR agents and continue to provide in-service education for agents. Developed basic beef training. Continued leadership in e-Xtension in equine and dairy.	We will continue to evaluate programs to assure optimum use of resources. These assessments indicate ASC investments are having significant impact. Continue development of curriculum-based training. Level of extramural funding remains high.	Service	5. Quality of Life	8	12	13	17



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Area **Provost**
 Department **Animal Sciences**
 Data Entry **Charles Guinnup**
 Mission Last Modified By **Robert Harmon**

College/Unit **College of Agriculture**
 Degree **BSA**
 Approver **Robert Harmon**

Objective Last Modified By **Charles Guinnup**

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:		
					UK Mission	UK Goal	UK Measures of Progress
01	To recruit and subsequently educate highly qualified students through a balanced program of: a) general University Studies, designed to enhance understanding of the physical and cultural world to which the Animal Industries contribute; and b) specialized courses in Animal Sciences and related professional areas.	1) Maintain enrollment of majors in animal science consistent with the anticipated shift of many students to the new Equine Initiative program.	Enrollment of Animal Science Majors for Fall 2006 was 276, down 7% from fall 2005. 1) Scholarships (93 totaling \$89,900) from the College of Agriculture were awarded to 83 students in Fall 2005. This is 43% more students and 37% more dollars than in 2005. These figures do not include awards from University sources other than the College of Agriculture. 2) Students appear to appreciate changes initiated in the new curriculum in fall 2005. We have increased enrollment in courses such as ASC 408G which had minimal enrollment for many years. 3) We continue to encourage students to develop resumes and to utilize the University Career Center. Twelve faculty are currently involved in advising students. Internships and experiential education are encouraged through participation in ASC 399 or (EXP 396).	1. Review teaching, assessment and recruitment issues in faculty retreat in January. 2. Continue to encourage students to participate in student organizations and campus events such as Career Day. 3. Encourage students to apply for scholarships available through the college.	Instructional	2. Outstanding Students	2.2 2.4 2.6 0

02 Provide modern teaching facilities, techniques, and a relevant curriculum to facilitate the development of highly qualified professionals.	Develop teaching facility at the University farm and update at least one classroom in Garrigus Building. Recruit at least one faculty member dedicated to the undergraduate program.	International experiences are encouraged and Dr. Bill Silvia will lead the College tour to China this summer. 1. Plans for a specific teaching facility at the Animal Research Center remain on hold, but we are optimistic that a facility will be incorporated in plans for the equine initiative. 2. A wall display for feed samples has been constructed and will be installed soon outside room B-52 of Garrigus.	1. Continue to encourage faculty to develop skills for use of electronic equipment. 2. Continue to encourage faculty to participate in advising and to distribute advisees more evenly so that more faculty are broadly aware of undergraduate issues related to our curriculum. 3. Support efforts to replace the dangerous 15 passenger vans with small buses designed for safer transport of students for field trips.	Instructional	2. Outstanding Students	2.2 2.4 2.6 0
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Annual Review Report 2005-2006 APPROVED

Area	Provost	College/Unit	College of Agriculture
Department	Animal Sciences	Degree	Food Science BS
Data Entry	Charles Guinnup	Approver	Robert Harmon
Mission Last Modified By	Robert Harmon	Objective Last Modified By	Robert Harmon

Unit Mission To educate undergraduate and graduate students in preparation for food-related careers in industry, academia, or government; 2) to conduct research that transforms commodities, ingredients, or foods to value-added products, and that improves food quality and safety; 3) to provide educational and training programs and information of value to the food industry, consumers, and general public.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measures of Progress			
01	Develop a highly visible undergraduate program in food science.	Seek to enhance IFT accredited BS degree program in food science; seek to increase the visibility of the food science program, Increase scholarship fund by 5%; increase undergraduate enrollment by 5%; ensure quality student professional and social activities; and have 100% professional placement for student upon graduation.	Two assistant professors were hired in 2006 which covered the critical teaching needs of core courses within the Animal and Food Sciences disciplines. Also, with the hiring of Dr. Suman one critical undergraduate course will be developed which will enhance our ability to meet accreditation requirements. The Bluegrass, C. L. Hicks, William Moody, and James Kemp scholarship funds had a total increase in principal of greater than \$12,000 in 2005 and 2006. This overall increase in scholarship principle was approximately 5%. Current undergraduate enrollment dropped to 28, thus enrollment targets were not met. Graduate placement for May 2006 graduates was 100%. Average starting salary was greater than \$40,000. The best undergraduate recruiting tools are the college ambassadors program and the food science web site.	Student recruitment remains a top priority and student faculty interactions will be at an all time high with the two new faculty on staff. Student retention will remain a top priority.	Instructional	2.	2.2	2.4	2.6	0
						Outstanding Students				

02	Enhance quality of teaching provided to students and effectiveness of student learning.	Instructors will attend campus and national teaching-related workshops (at least one per faculty); instructors will develop teaching portfolios that will be critically evaluated by peers; the internet will be an essential resource for teaching and learning; computers and internet access will be readily available to students for course studies; two-way communication, critical thinking, and team approach will be emphasized; hands-on experience through field trips (1-3/class), lab exercises, internships will be incorporated and emphasized.	All instructors have attended at least one UK or professional teaching seminar or teaching workshop during the last two years. Most interested Sophomores, and all interested Juniors and Seniors had paid internships at major food manufacturers or suppliers. All food science laboratories provide students with hands on laboratory experiences and internet opportunities. Acquisition of current processing equipment remains a problem within our processing laboratories.	Hands-on activities prove to be an effective means by which students learn, hence, they will continue to be incorporated in teaching and training; faculty will maintain a closer contact with their respective student advisees to provide maximum help with course work and other learning activities; greater faculty-student interaction has been stressed and positively received.	Instructional	2.	2.2	2.4	2.6	0
						Outstanding Students				

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Annual Review Report 2005-2006 APPROVED

Area **Provost**
 Department **Animal Sciences**
 Data Entry **Charles Guinnup**
 Mission Last Modified By **Robert Harmon**

College/Unit **College of Agriculture**
 Degree **PhD**
 Approver **Robert Harmon**

Objective Last Modified By **Robert Harmon**

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measures of Progress			
01	Graduates will be capable of professional and/or scholarly contributions that advance the discipline.	*Number of graduate refereed publications or book chapters will be at least 35% of the number of students currently enrolled. *Number of oral or poster presentations at national or regional conferences will be at least 65% of the number of students enrolled.*20% of all doctoral students on assistantship will be supported by external grants.	42.5% of graduate students published papers in refereed journals. Based on the number of presentations, 118% gave presentations at scientific meetings. 80% of Ph.D. students receive support outside the department, i.e. soft money or fellowships.	Goals will be viewed to insure continued success of graduates.	Research	4. New Knowledge	4.1	3.2	0	0
03	Graduates will demonstrate academic, technical, and/or professional proficiency in their discipline.	60% of all graduate students will maintain a GPA of 3.6 or greater; 65% of Ph.D. graduates will obtain postdoctoral or faculty positions at major colleges or universities.	56% of students are maintaining a 3.5 or better GPA and 78% have a 3.4 or better GPA while 77% of Ph.D. students have better than a 3.5 GPA. 100% of previous years students are employed or have received offers in their discipline.	This area will be reviewed and emphasized in departmental student selection.	Instructional	2. Outstanding Students	4.3	0	0	0
04	Graduates will be successful in securing appropriate employment in	Graduate School Doctoral Placement Survey: *80% of all doctoral graduates will have obtained employment or be in postdoctoral positions within six	100% of Ph.D graduates were employed in post-doc or permanent positions within 6 months. 100% of M.S. graduates have	Department will monitor to insure success of graduates.	Overall	0. Other	4.3	0	0	0

their discipline. months of graduation. *25% of all discipline related jobs
doctoral graduates will have within 6 months of
obtained tenure-track positions at a graduation.
college or university. Master's
Survey: *85% of Master's graduates
will have obtained discipline-related
employment within six months of
graduation.

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STRATEGIC PLANNING AND REPORTING SYSTEM**Annual Review Report 2005-2006 APPROVED**Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Research)**Degree: **N/A**Data Entry **Charles Guinnup**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Increase departmental extramural research support.	Maintain research proposal submission at 1.5 per research FTE per year. Increase extramural funding by 5% each year (averaged over 3 years).	Direct awards increased from \$3.4 M (FY05) to \$4.5 M (FY06)	Proposal submissions will be at least 1.5 per research FTE per year. Annual growth in extramural support will be 5% (average) over 3 years.	Research	4. New Knowledge	4.1	6.3	0	0
02	Maintain a nationally recognized graduate research and training program.	Maintain graduate student enrollment near 50 students. Increase average student stipends by 10%.	Student numbers averaged 47 for 2003-2006 period.	Faculty are continually encouraged to offer competitive salaries. We continue to emphasize recruitment of high quality students.	Research	4. New Knowledge	4.3	4.4	0	0
03	Enhance visibility of departmental research programs.	Maintain number published articles at or above 2.5 per research FTE each year.	Published articles averaged 2.5 for 2003-2005 period.	Will maintain publication rate of at least 2 papers per research faculty FTE.	Research	1. National Prominence	1.1	3.4	3.2	0
04	Increase multi-disciplinary research activities.	Increase the number of formal collaborative research projects.	Collaborative awards increased from \$2.8 M (FY05) to \$4.1 M (FY06).	Chair is working with College administration to identify additional collaborative relationships. Chair regularly advises faculty of potential.	Research	4. New Knowledge	4.1	6.3	0	0



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2005-2006 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences (Extension)**

Degree: **N/A**

Data Entry **Charles Guinnup**

Approver **Robert Harmon**

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	a) Improve the competitive position and profitability of animal agriculture in KY by educating producers and processors of animal products in the selection, understanding and application of technology suited to their specific resources. b) Provide extension education in animal agriculture technology for youth and young adults to fully develop the human capital of rural Kentucky. c) Improve the nutrition, diet and health of KY citizens by assisting targeted clientele in applying technology to increase the quality, safety and economic value of foods of animal origin.	Evaluate: a) methods of delivery of extension education programs. b) Level of extramural funding for extension education. c) Level of multi-state and inter-disciplinary involvement in extension programming. d) Level of paraprofessional support for extension faculty. e) The quality and quantity of traditional extension publications on a quadrennial basis.	8.5 paraprofessionals are working in ASC extension programs with 5.5 FTE on extramural funds. Extension grants were \$809,520 in FY06. Formal evaluation of extension presentations has been implemented. Impact of extension programs continue to be assessed. Intensive training of producers was a result of Master Cattleman, Advanced Master Cattleman, Master Grazer, Horse College, Dairy Seminars, and Goat Field Day and Seminars. ASC cooperates with several other departments and KSU in these programs. Developing a curriculum-based educational program for ANR agents and continue to provide in-service education for agents.	We will continue to evaluate programs to assure optimum use of resources. These assessments indicate ASC investments are having significant impact. Continue development of curriculum-based training. Level of Extramural funding continues to increase.	Service	0. Other	6.1	6.1	6.6	1.1



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Annual Review Report 2004-2005 APPROVED

Area **Provost**
 Department **Animal Sciences**
 Data Entry **Charles Guinnup**
 Mission Last Modified By **Robert Harmon**

College/Unit **College of Agriculture**
 Degree **BSA**
 Approver **Robert Harmon**

Objective Last Modified By **Robert Harmon**

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measures of Progress			
01	To recruit and subsequently educate highly qualified students through a balanced program of: a) general University Studies, designed to enhance understanding of the physical and cultural world to which the Animal Industries contribute; and b) specialized courses in Animal Sciences and related professional areas.	1) Increase undergraduate enrollment by 10% 2) Increase departmental scholarship dollars by 10%. 3) Annually evaluate undergraduate curriculum to assure undergraduates are exposed to relevant material. 4) Provide guidance for all undergraduates seeking part-time and/or full-time employment	Enrollment of Animal Science Majors for Fall 2005 was 297, up 12% from 264 for Fall 2004. 58 students received a total of 73 scholarships worth \$65,700 from the College of Agriculture in 2005; Number of students is unchanged, but scholarship amount is 83% of 2004. These figures do not identify scholarships from University sources other than the College of Agriculture. Student's are encouraged to participate in Career Days, internships and experiential education. International experiences include Ireland, South Africa, Australia.	Review teaching, assessment and recruitment issues in faculty retreat in January. Encourage students to participate in student organizations and campus events such as Career Day. Encourage students to apply for scholarships available through the college.	Instructional	2.	2.2	2.4	2.6	0
02	Provide modern teaching facilities, techniques, and a relevant curriculum to facilitate the development of highly qualified professionals.	Develop teaching facility at the University farm and update at least one classroom in Garrigus Building. Recruit at least one faculty member dedicated to the undergraduate	Plans for a specific teaching facility at the Animal Research Center remain on hold. Room B-52 (the largest lecture room in Garrigus now has electronic equipment (computer, Elmo video/overhead projection, and video projection equipment). However, it still lacks internet access. Personal Response system	Encourage faculty to develop skills for use of electronic equipment. Continue to encourage faculty to participate in advising and to distribute advisees	Instructional	2.	2.2	2.4	2.6	0

program.

which allows instantaneous student more evenly.
feedback to quizzes and survey is Support efforts to
being installed in Garrigus 108 and replace 15
109, from a grant from C.E. passenger vans
Barnhart fund. The new with small busses.
curriculum has been approved by
the Unviversity Senate and was
implemented Fall 2005. The
curriculum addresses the
decreasing enrollments in
production courses and combines
some existing courses and adds
new subject matter. We continue to
encourage students to develop
resumes and to utilize the
University Career Center. Fourteen
faculty are currently involved in
advising students.

2 objective(s) found.

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Annual Review Report 2004-2005 APPROVED

Area	Provost	College/Unit	College of Agriculture
Department	Animal Sciences	Degree	Food Science BS
Data Entry	Charles Guinnup	Approver	Robert Harmon
Mission Last Modified By	Robert Harmon	Objective Last Modified By	Robert Harmon

Unit Mission
 To educate undergraduate and graduate students in preparation for food-related careers in industry, academia, or government; 2) to conduct research that transforms commodities, ingredients, or foods to value-added products, and that improves food quality and safety; 3) to provide educational and training programs and information of value to the food industry, consumers, and general public.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:		
					UK Mission	UK Goal	UK Measures of Progress
01	Develop a highly visible undergraduate program in food science.	Seek to enhance IFT accredited BS degree program in food science; seek to increase the visibility of the food science program, Increase scholarship fund by 5%; increase undergraduate enrolment by 5%; ensure quality student professional and social activities; and have 100% professional placement for student upon graduation.	A single accredited food science program now exist on campus. The visibility of food science increased when the department became "Dept. of Animal and Food Sci". The Moody and Bluegrass IFT scholarships now support 5 students and the new Clair L. Hicks scholarship was initiated in 2005. Undergraduate enrollment remained steady at 34 students. Five students have received National IFT scholarships in 2005. Graduate placement for May 2005 students was 100%. Average starting salaries for BS students was greater than \$40,000. Active student recruitment continues through Ag Roundup, Encounter Days, and via student Ambassadors who visit high schools. The Food Science web page remains a valuable recruiting tool.	Student recruitment remains a top priority; faculty-student interactions will be strengthened, e.g., through Food Science Club activities, to ensure student retention; an initiative to form a food industry advisory board meets annually.	Instructional	2.	2.2 2.4 2.6 0
02	Enhance quality of	Instructors will attend campus and national	All interested junior/senior students had summer	Hands-on activities prove to be an	Instructional	2.	2.2 2.4 2.6 0

teaching provided to students and effectiveness of student learning.

teaching-related workshops (at least one per faculty); instructors will develop teaching portfolios that will be critically evaluated by peers; the internet will be an essential resource for teaching and learning; computers and internet access will be readily available to students for course studies; two-way communication, critical thinking, and team approach will be emphasized; hands-on experience through field trips (1-3/class), lab exercises, internships will be incorporated and emphasized.

internships at various food companies; all the undergraduate level food science courses incorporated hands-on laboratory exercises and internet opportunities; Food Science (FSC434G), Food Analysis (FSC536) and Food Lipids (FSC640) courses were published on Web pages; several undergraduate students were hired by faculty advisors to work in the lab to gain research experiences; Fall 2004 the second study tour was held.

effective means by which students learn, hence, they will continue to be incorporated in teaching and training; faculty will maintain a closer contact with their respective student advisees to provide maximum help with course work and other learning activities; greater faculty-student interaction has been stressed and positively received.

Students

2 objective(s) found.

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STRATEGIC PLANNING AND REPORTING SYSTEM

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UNIVERSITY OF KENTUCKY

Annual Review Report 2004-2005 APPROVED

Area	Provost	College/Unit	College of Agriculture
Department	Animal Sciences	Degree	PhD
Data Entry	Charles Guinnup	Approver	Robert Harmon
Mission Last Modified By	Robert Harmon	Objective Last Modified By	Robert Harmon

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measures of Progress			
01	Graduates will be capable of professional and/or scholarly contributions that advance the discipline.	*Number of graduate refereed publications or book chapters will be at least 35% of the number of students currently enrolled. *Number of oral or poster presentations at national or regional conferences will be at least 65% of the number of students enrolled.	Currently 89% of students on GRA are at least partially supported on external grants. 25% of grad students published papers in refereed journals in 2004. 74% gave presentations in scientific meetings.	Goals will be reviewed to insure continued success of graduates.	Research	4. New Knowledge	4.1	4.3	0	0
03	Graduates will demonstrate academic, technical, and/or professional proficiency in their discipline.	60% of all graduate students will maintain a GPA of 3.6 or greater; 65% of Ph.D. graduates will obtain postdoctoral or faculty positions at major colleges or universities.	Overall average GPA is > 3.5, 51% of students have GPA > 3.6 and 36% have GPA > 3.7. 100% of Ph.D. student graduates are employed or in post doc status.	This area will be reviewed and emphasized in departmental student selection.	Instructional	2. Outstanding Students	4.3	0	0	0
04	Graduates will be successful in securing appropriate employment in their discipline.	Graduate School Doctoral Placement Survey: *80% of all doctoral graduates will have obtained employment or be in postdoctoral positions within six months of graduation. *25% of all doctoral graduates will have obtained tenure-track positions at a college or university. Master's Survey: *85% of Master's graduates	100% of Ph.D. graduates were employed in postdoc or permanent position within six months. None in the past year accepted a university position. 100% of M.S. graduates have discipline related jobs within 6 months of graduation.	Department will monitor to insure success of graduates.	Overall	0. Other	4.3	0	0	0

will have obtained discipline-related employment within six months of graduation.

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UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM**Annual Review Report 2004-2005 APPROVED**Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Research)**Degree: **N/A**Data Entry **Robert Harmon**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Increase departmental extramural research support.	Maintain research proposal submission at 1.5 per research FTE per year. Increase extramural funding by 5% each year (averaged over 3 years).	Direct awards increased from \$2.1 million (FY04) to \$3.4 million (FY05).	Proposal submissions will be at least 1.5 per research FTE per year. Annual growth in extramural support will be 5% (average) over 3 years.	Research	4. New Knowledge	4.1	6.3	0	0
02	Maintain a nationally recognized graduate research and training program.	Maintain graduate student enrollment near 50 students. Increase average student stipends by 10%.	Student numbers decreased from 56 to 41 from 2003 to 2004.	Faculty are continually encouraged to offer competitive salaries. We continue to emphasize recruitment of high quality students.	Research	4. New Knowledge	4.3	4.4	0	0
03	Enhance visibility of departmental research programs.	Maintain number published articles at or above 2.5 per research FTE each year.	Published articles increased 2% from 2003 to 2004.	Will maintain publication rate of at least 2 papers per research faculty FTE.	Research	1. National Prominence	1.1	3.4	3.2	0
04	Increase multi-disciplinary research activities.	Increase the number of formal collaborative research projects.	Collaborative awards increased from \$2.4 million (FY04) to \$2.8 million (FY05).	Chair is working with College administration to identify additional collaborative relationships. Chair regularly advises faculty of potential relationships.	Research	4. New Knowledge	4.1	6.3	0	0



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2004-2005 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences (Extension)**

Degree: **N/A**

Data Entry **Charles Guinnup**

Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	a) Improve the competitive position and profitability of animal agriculture in KY by educating producers and processors of animal products in the selection, understanding and application of technology suited to their specific resources. b) Provide extension education in animal agriculture technology for youth and young adults to fully develop the human capital of rural Kentucky. c) Improve the nutrition, diet and health of KY citizens by assisting targeted clientele in applying technology to increase the quality, safety and economic value of foods of animal origin.	Evaluate: a) methods of delivery of extension education programs. b) Level of extramural funding for extension education. c) Level of multi-state and inter-disciplinary involvement in extension programming. d) Level of paraprofessional support for extension faculty. e) The quality and quantity of traditional extension publications on a quadrennial basis.	6.5 paraprofessionals are working in ASC extension programs with 3.5 FTE on extramural funds. Extension grants were \$547,010 in FY05. Formal evaluation of extension presentations has been implemented. Impact of extension programs continue to be assessed. Intensive training of producers was a result of Master Cattlemen, Horse College, Dairy Seminars, and Goat Field Day and Seminars. ASC cooperates with several other departments and KSU in these programs. Developing a curriculum-based educational program for ANR agents. Lead role in Southern Region beef resource website through extension.	We will continue to evaluate programs to assure optimum use of resources. These assessments indicate ASC investments are having significant impact. Continue development of curriculum-based training.	Service	6. Quality of Life	6.1	6.6	1.1	0

Animal and Food Sciences

Appendix V

Undergraduate Program



Animal Sciences

College of Agriculture
and School of Human
Environmental Sciences

Animals have many important roles in human societies including the provision of food and fiber, draft power, recreational and athletic activities, and companionship. In addition, animals and their interactions with humans have environmental consequences. Processing, preservation, and quality of animal-derived foods significantly affect human health and economics. Animal Sciences involves studying and applying the basic principles of nutrition, reproduction, and genetics to the production and management of animals including horses, dairy and beef cattle, sheep, swine, poultry, and other domesticated species. Additional course work provides information on production and handling of animal-derived foods.

No one program fits all Animal Sciences students. Students come from varied backgrounds and their interests range from livestock and poultry production and management to marketing and public relations; from public education and extension to graduate training in research and teaching and veterinary medicine. No matter what species you have an interest in, the Animal Sciences major will allow you to combine your interest with your desire for an exciting and rewarding career.

As an Animal Sciences major, students have the opportunity to pursue specific interests by selecting one of three study options: Animal Industry, Food Industry or Pre-Professional. The Animal Industry option is for those students interested in animal production and management and allows specialization in one of three areas: livestock, equine, or dairy. The Food Industry option is designed to provide an emphasis on aspects of food processing, chemistry, and safety. The Pre-Professional option is a rigorous study program for students with interests in veterinary sciences, human medicine, and graduate research. Students must consult the pre-professional advisor or graduate school advisor of the university to which they intend on applying for additional or specific requirements.

Career Opportunities

To keep pace with the food, fiber, and recreation requirements of a growing world population, Animal Sciences graduates are needed in the livestock industry and closely related fields. The Animal Sciences major offers considerable flexibility in fulfilling specific career objectives, whether you are interested in working directly with livestock or indirectly in closely related areas such as agribusiness, research, government, or education.

Graduation Requirements

To earn the Bachelor of Science in Animal Sciences, the student must have a minimum of 120 credit hours with at least a 2.0 grade-point standing. A minimum of 45 credit hours must be from upper division courses (300 and above). Remedial courses may **not** be counted toward the total hours required for the degree. In addition to University Studies requirements, students must complete college, departmental and specialty support requirements.

Plan of Study

As an animal sciences major you are required to develop an acceptable **Plan of Study** during your sophomore year for your junior and senior years. The plan must be signed by your advisor and returned to the Office of Academic Programs.

If you are an upper division transfer student (from another university or from another UK college or department) then you will submit your plan during the first semester you are enrolled in the program. Consult your academic advisor in developing your Plan of Study.

Each student must complete the following:

College Required Hours

GEN 100 Issues in Agriculture	3
Subtotal: College Required Hours	3

University Studies Requirements

Hours

See "University Studies Program" on pages 84-88 of the 2010-2011 UK Bulletin for the complete University Studies requirements.

The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill University Studies areas. Students should work closely with their advisor to complete the University Studies Program requirements.

Courses marked with an asterisk (*) may also be used to satisfy University Studies requirements.

Inference-Logic

MA 123 Elementary Calculus and Its Applications	3
or	
MA 113 Calculus I	4

Natural Sciences

CHE 105 General College Chemistry I	3
CHE 107 General College Chemistry II	3

USP Electives

BIO 150 Principles of Biology I	3
BIO 152 Principles of Biology II	3

Premajor Requirements

Hours

*MA 123 Elementary Calculus and Its Applications	3
or	
*MA 113 Calculus I	4
*BIO 150 Principles of Biology I	3
*BIO 152 Principles of Biology II	3
*CHE 105 General College Chemistry I	3
*CHE 107 General College Chemistry II	3
*CHE 111 Laboratory to Accompany General Chemistry I	1
*CHE 113 Laboratory to Accompany General Chemistry II	2
**ENG 203 Business Writing	3

Subtotal: Premajor Hours 21-22

**Satisfies the Graduation Writing Requirement.

Major Requirements

Hours

ASC 101 Domestic Animal Biology	3
ASC 102 Applications of Animal Science	3
ASC 205 Livestock, People and Their Interactions	1
ASC 325 Animal Physiology	3
ASC 362 Animal Genetics	4
ASC 364 Reproductive Physiology of Farm Animals	4
ASC 378 Animal Nutrition and Feeding	4
ASC 470 Capstone for Animal Agriculture	3

Animal Sciences • 2

plus at least **three** of the following courses:

ASC 340 Poultry Production	2
ASC 404G Sheep Science	4
ASC 406 Beef Cattle Science	4
ASC 408G Swine Production	2
ASC 410G Equine Science	3
ASC 420G Dairy Cattle Science	3
Subtotal: Major Hours	32-36

In addition to the Major Requirements, students choose **one** of three options:

Option A: Animal Industry

Students fulfilling the Major Requirements are eligible for the Animal Industry Option by taking certain required Specialty Support Courses (see below). In addition, students with more specific interests may, but are not required to, choose from three specializations available within this Option.

No Specialization

(required Specialty Support only; see below) 0

Livestock Specialization

ASC 300 Meat Science 4
and at least **two** from:

ASC 340 Poultry Production	2
ASC 404G Sheep Science	4
ASC 406 Beef Cattle Science	4
ASC 408G Swine Production	2

Equine Specialization

ASC 310 Equine Anatomy and Conformation	2
ASC 320 Equine Management	3
ASC 410G Equine Science	3

Dairy Specialization

ASC 420G Dairy Cattle Science	3
ASC 564 Milk Secretion	3

Subtotal: Option A Hours **0-5**

Option B: Food Industry

Students fulfilling the Major Requirements are eligible for the Food Industry Option by taking certain required Specialty Support Courses (see below) and:

ASC 300 Meat Science	4
FSC 107 Introduction to Food Science	3

Subtotal: Option B Hours **7**

Option C: Pre-Professional

Students fulfilling the Major Requirements are eligible for the Pre-Professional Option by taking certain Specialty Support Courses (see below). Students must consult the pre-professional advisor or graduate school advisor of the university to which they intend on applying for additional or specific requirements.

Specialty Support

Animal Industry Option

CHE 230 Organic Chemistry I	
or	
CHE 236 Survey of Organic Chemistry	3
Depending on the student's area of interest and subject to the advisor's approval, additional courses at the 200-level or above may be selected from biochemistry, biology, chemistry, physics, statistics, or any agriculture-related area other than Animal Sciences	15

Food Industry Option

CHE 230 Organic Chemistry I	
or	
CHE 236 Survey of Organic Chemistry	3
FSC 304 Animal Derived Foods	5
Depending on the student's area of interest and subject to the advisor's approval, additional courses at the 200-level or above may be selected from biochemistry, biology, chemistry, physics, statistics, or any agriculture-related area other than Animal Sciences	12

Pre-Professional Option*

BIO 304 Principles of Genetics	
or	
ABT/ENT 360 Genetics	3-4
CHE 230/231 Organic Chemistry and Laboratory I	5
CHE 232/233 Organic Chemistry and Laboratory II	5
PHY 211 General Physics	5
PHY 213 General Physics	5

**Students must consult the pre-professional advisor or graduate school advisor of the university to which they will apply for additional or specific requirements.*

Subtotal: Specialty Support **18-24**

Electives

Electives should be selected to complete the 120 hours required for graduation.

Subtotal: Electives **minimum of 17**

TOTAL HOURS: **120**

College of Agriculture

ASC

Animal Sciences

ASC 101 DOMESTIC ANIMAL BIOLOGY. (3)

The first in a sequence of two courses providing an introduction to the subject of animal science. Emphasis is placed on a fundamental understanding of anatomy, physiology, nutrition, reproduction, genetic and behavior of domestic animals.

ASC 102 APPLICATIONS OF ANIMAL SCIENCE. (3)

The second in a sequence of two courses providing an introduction to the subject of animal science. Emphasis is placed on the application of scientific disciplines of anatomy, physiology, nutrition, reproduction, genetics and behavior in the management of domestic animals. Prereq: ASC 101.

ASC 106 ANIMAL AGRICULTURE IN THE MODERN WORLD. (3)

Relationships of food production and consumption to income of humans throughout the world; major livestock (beef and dairy cattle, sheep, swine, poultry and horses) production areas of the world; relationships between live animal merit and yield of retail cuts of meat; identification of skeletal components; identification and functions of reproductive and digestive tract components; characteristics of breeds of beef and dairy cattle, sheep, swine, poultry and horses.

ASC 205 LIVESTOCK, PEOPLE AND THEIR INTERACTIONS. (1)

Local experts in a wide variety of animal production enterprises and associated support services will give presentations on their area of expertise. Following the presentation, students will have the opportunity to discuss the topic of the day and potential employment opportunities in that field with the speaker. Prereq: ASC 101, ASC 102 (or concurrent enrollment).

ASC 300 MEAT SCIENCE. (4)

A historical perspective of the meat industry together with major changes in body type and composition in both the live animal and its end product meat. Students will evaluate live market animals (swine, cattle, sheep), harvest the market animals, and follow their carcasses and cuts through fabrication and distribution channels. Major topics of discussion will focus on growth and development, inspection, grading, physical and chemical composition of meat and postmortem changes that affect meat quality. Additional information will cover meat marketing trends, nutrition, meat cookery, meat selection, health issues and consumer information. Lecture: two hours; laboratory two hours per week. Prereq: ASC 106.

ASC 301 LIVESTOCK SELECTION AND EVALUATION. (3)

Selection principles of purebred and commercial beef cattle, sheep, swine and horses. Evaluation of live animal and carcass characteristics of beef cattle, sheep and swine. Emphasis placed on oral reasons. Laboratory, six hours. Not open to freshmen. Prereq: ASC 106.

ASC 303 EVALUATION AND GRADING OF MEATS. (2)

A detailed consideration of the factors involved in the selection, grading and evaluation of carcasses and wholesale cuts of beef, pork and lamb. Specific emphasis will be given to cutability, quality and maturity as they relate to palatability and acceptance by the consumer. Laboratory, four hours. Prereq: FSC 304 or FSC 306.

ASC 309 ADVANCED EVALUATION AND GRADING OF MEAT. (2)

Further consideration of the factors involved in selecting, grading and evaluating carcasses and wholesale cuts of beef, pork, and lamb. Emphasis will be placed on writing reasons. Laboratory, four hours. Prereq: ASC 303 or consent of instructor.

ASC 310 EQUINE ANATOMY AND CONFORMATION. (2)

Anatomy of the horse with emphasis on the feet and legs. Topics will also include analysis of gaits, movement and the causes of common unsoundness with particular attention to the relationship between conformation and soundness and the application of visual appraisal to the selection of horses for performance and breeding. Prereq: ASC 106 and ASC 120.

ASC 311 ADVANCED EQUINE EVALUATION. (1)

Advanced study of conformation and performance in the horse. Selection of horses of different breeds based on confirmation, breed character and movement. Emphasis will be placed on developing a knowledge of industry standards and preparation of oral reasons. Prereq: ASC 310.

ASC 312 ADVANCED LIVESTOCK SELECTION AND EVALUATION. (2)

Selection of purebred and commercial beef cattle, sheep, swine and horses. Special emphasis on oral reasons, livestock contest procedures and herd improvement principles. Laboratory, six hours. Prereq: ASC 301 or consent of instructor.

ASC

Animal Sciences

- ASC 320 EQUINE MANAGEMENT. (3)**
Study of the basic principles associated with horse management. Topics will include equine behavior, equine diseases and herd health programs, facilities and environmental management, nutrition and feeding management. Lecture, two hours; laboratory, three hours per week. Prereq: ASC 106 and ASC 120.
- ASC 321 DAIRY CATTLE EVALUATION. (2)**
Evaluation of dairy cattle for type characteristics. Laboratory, four hours.
- ASC 323 ADVANCED DAIRY CATTLE EVALUATION. (1)**
Open only to those who have consent of instructor. Laboratory, two hours. Prereq: ASC 321.
- ASC 325 ANIMAL PHYSIOLOGY. (3)**
An introduction to the functional anatomy and physiology of major body systems in domestic animals. Emphasis will be on how these systems interact to regulate circulation, gas exchange, acid-base balance, digestion and metabolism, locomotion and adapting to environmental changes. Prereq: BIO 152, CHE 115 or equivalent.
- ASC 340 POULTRY PRODUCTION. (2)**
A study of the application of avian biology to modern poultry production. Topics include anatomy, physiology, reproduction, incubation and embryonic development, breeding and genetics, nutrition and feeding, disease control, housing and environmental control, management, poultry and egg products, and the structure of the poultry industry. For majors and non-majors. Prereq: ASC 101 or ASC 102 or equivalent or permission of the instructor.
- ASC 362 ANIMAL GENETICS. (4)**
Study of genetics as applied to specific companion animals and livestock species. Roles of selection and mating systems and their expected consequences are examined when applied to qualitative and quantitative traits expressed by specific companion animals and various livestock species. Prereq: ASC 101.
- ASC 364 REPRODUCTIVE PHYSIOLOGY OF FARM ANIMALS. (4)**
Introduction to anatomy and physiological processes related to reproduction with a focus on farm animals. Evaluations of management procedures as they relate to reproductive physiology. Prereq: ASC 101 or BIO 152, CHE 230 or CHE 236. (Chemistry may be taken concomitantly.)
- ASC 378 ANIMAL NUTRITION AND FEEDING. (4)**
A fundamental study of the nutrients, their utilization and their role in the animal in conjunction with an applied understanding of the manner in which feedstuffs are evaluated and blended to meet the various species needs for those nutrients. Prereq: CHE 230 or 236.
- ASC 380 FEEDS AND FEEDING. (3)**
The composition and nutritional characteristics of common feedstuffs. The digestive systems, nutritional requirements, formulated rations and economical feeding programs for farm animals. Lecture, two hours; laboratory, two hours. Prereq: ASC 378.
- ASC 382 ANIMAL PRODUCTION PRINCIPLES. (3)**
A broad survey of animal agricultural management covering cattle, horses, poultry, swine, sheep and goats. Emphasis is placed on the practical application of scientific disciplines including anatomy, physiology, nutrition, reproduction and genetics. For nonmajors only.
- ASC 395 SPECIAL PROBLEM IN ANIMAL SCIENCE/FOOD SCIENCE. (1-4)**
Independent study in animal and food science under the supervision of a faculty member. May be repeated for a maximum of eight credits. Prereq: Consent of appropriate instructor. (Same as FSC 395.)
- ASC 399 EXPERIENTIAL LEARNING IN ANIMAL SCIENCES/FOOD SCIENCE. (1-6)**
A field-based learning experience in animal sciences and food science under the supervision of a faculty member. May be repeated to a maximum of six credits as an elective on a pass/fail basis. Prereq: Consent of instructor and department chairperson and completion of a departmental learning contract before registration. (Same as FSC 399.)

ASC

Animal Sciences

- *ASC 404G SHEEP SCIENCE. (4)**
History and importance of the sheep industry; application of the principles of selection, breeding, feeding and management of sheep for efficient lamb and wool production. Lecture, three hours per week; laboratory, three hours per week. Prereq: ASC 300, ASC 362, ASC 364, ASC 378 or consent of instructor.
- ASC 406 BEEF CATTLE SCIENCE. (4)**
Scope and importance of the beef cattle industry; roles of the major cattle breeds and organizations associated with the beef cattle industry; application of equipment, identification, nutrition, reproduction, genetics, health, marketing, taxation and management principles to beef cattle production; impact of current economic, social and environmental issues on the beef cattle industry. Lecture, three hours; laboratory, three hours. Prereq: ASC 300, ASC 362, ASC 364 and ASC 380 or consent of instructor.
- ASC 408G SWINE PRODUCTION. (2)**
A study of scope and importance of the swine industry. Application of principles of breeding, reproduction, nutrition, housing, health, and management of swine in modern production systems. Prereq: ASC 101, 102, 378.
- ASC 410G EQUINE SCIENCE. (3)**
Detailed study of the anatomy and physiology of the horse as they relate to the nutrition, reproduction, athletic ability, unsoundness and control of diseases and parasites. Lecture, two hours; laboratory, two hours. Prereq: ASC 362, ASC 364 and ASC 380 or consent of instructor.
- ASC 420G DAIRY CATTLE SCIENCE. (3)**
Scope and importance of the dairy cattle industry; selection, breeding, housing, feeding and management of dairy cattle. Lecture, two hours; laboratory, two hours. Prereq: ASC 362, ASC 364 and ASC 380 or consent of instructor.
- ASC 470 CAPSTONE FOR ANIMAL AGRICULTURE. (3)**
Discussion of the importance of livestock production to society and consideration of major issues impacting animal agriculture. Principles and practices learned in disciplinary and commodity Animal Sciences courses are integrated into a unified perspective, and the scientific method is employed as an approach to problem analysis and resolution. Refinement of skills in critical thinking, information gathering, writing, and oral communication is emphasized. Prereq: Senior standing in College of Agriculture, Animal Sciences major.
- ASC 564 MILK SECRETION. (3)**
Anatomy of the mammary gland, physiology and biochemistry of milk secretion and management factors affecting yield and composition of milk. Prereq: ASC 380, VS 350.
- ASC 601 MAMMALIAN ENDOCRINOLOGY. (3)**
An introduction to the basic anatomy, physiology and biochemistry of endocrine systems with emphasis on mechanisms of hormone synthesis, secretion and action. Lectures and reading assignments will focus on endocrine function in mammalian species, including laboratory animals, humans and livestock. Prereq: BCH 401G and BIO 350 or equivalents. (Same as PGY 601.)
- ASC 602 INTEGRATED NUTRITIONAL SCIENCES II. (3)**
Integrated study of the properties, metabolism, biochemical and physiological functions and interactions of vitamins and minerals, and their relationships to chronic diseases, deficiency symptoms and toxicity. Prereq: IBS 601, PGY 206. (Same as CNU/NS 602.)
- ASC 630 ADVANCED MEAT SCIENCE. (4)**
Advanced meat science with special reference to the histological, chemical, physical and microbiological properties as they relate to meat quality, organoleptic acceptability and processing procedures. Lecture, three hours; laboratory, two hours. Prereq: FSC 304, FSC 306 or equivalent; one course in histology or biochemistry or consent of instructor. (Same as FSC 630.)
- ASC 660 BIOLOGY OF REPRODUCTION. (3)**
Advanced study of current topics in reproductive biology. The course is comprised equally of student-led discussions and lectures given by faculty with research expertise in selected topics. Readings will be taken from current and classic literature. Topics covered include (but are not limited to) molecular and cellular endocrinology, hormone receptors and mechanism of action, reproductive neuroendocrinology, reproductive behavior, gametogenesis, fertilization, sexual differentiation, puberty, menopause and environmental effects on reproduction. Emphasis will be placed on the analysis and understanding of the experimental basis for current concepts in reproductive biology. Prereq: ASC/PGY 601 and ASC 364 or BIO/PGY 502 or consent of instructor. (Same as PGY 660 and ANA 660.)

ASC

Animal Sciences

- ASC 680 LABORATORY METHODS IN NUTRITIONAL SCIENCES. (4)**
The use of laboratory techniques and instrumentation in the solution of fundamental problems of nutrition. Lecture, one hour; laboratory, six hours.
- ASC 681 ENERGY METABOLISM. (2)**
An in-depth discussion of nutritional energetics, from the standpoint of factors which influence the utilization of dietary energy. A critical review of current literature. Prereq: ASC 378 or equivalent, BCH 502 or equivalent or consent of instructor.
- ASC 682 MICROBIAL ECOLOGY OF DIGESTION. (4)**
Principles of microbiology as they relate to nutrition and digestion in ruminant and nonruminant animals. Procedures for cultivation, isolation and characterization of anaerobic bacteria from the gastrointestinal tract. Methods for measuring and evaluating microbial growth and activity in the gastrointestinal tract. Lecture, two hours; laboratory, four hours. Prereq: BIO 476G or equivalent and consent of instructor.
- ASC 683 PROTEIN METABOLISM. (2)**
A study of the principles and present concepts of protein and amino acid nutrition and metabolism in the animal. Prereq: Graduate level biochemistry.
- ASC 684 ADVANCED RUMINANT NUTRITION. (3)**
Principles of ruminant metabolism in the utilization of feedstuffs for meat, milk, and wool production. Prereq: ASC 682 and two or more courses from ASC 681, ASC 683, ASC 685 and ASC 687 or consent of instructor.
- ASC 685 MINERAL METABOLISM. (2)**
An in-depth review of the function, requirement deficiency and toxicity of mineral elements in nutrition. Emphasis on the interactions between elements and current literature will be made. Prereq: ASC 378 or NFS 510 or equivalent, BCH 502 or equivalent or consent of instructor.
- ASC 686 ADVANCED NONRUMINANT NUTRITION. (3)**
A study of nutrient utilization as influenced by digestion, absorption and metabolism with emphasis on swine and poultry. Prereq: One course each in nutrition and biochemistry.
- ASC 687 VITAMIN METABOLISM. (2)**
Detailed study of the metabolism of vitamins and the role of vitamins in the metabolism of carbohydrates, proteins, lipids, and minerals. Prereq: BCH 502 or CHE 552 or consent of instructor.
- ASC 688 EQUINE NUTRITION. (2)**
Detailed study of anatomical, physiological and microbiological factors influencing the nutritive requirements of the equine for maintenance, growth, reproduction, lactation and work. Prereq: One course in nutrition and physiology or biochemistry or consent of instructor.
- ASC 689 PHYSIOLOGY OF NUTRIENT DIGESTION AND ABSORPTION. (3)**
An analysis and comparison of the structure and function of mammalian and avian gastrointestinal tracts, of feedstuff digestive processes, and of specific mechanisms responsible for nutrient absorption in various cell types. Emphasis is placed on livestock and avian species. Prereq: Graduate level Biochemistry.
- ASC 748 MASTER'S THESIS RESEARCH. (0)**
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.
- ASC 749 DISSERTATION RESEARCH. (0)**
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

ASC

Animal Sciences

- ASC 767 DISSERTATION RESIDENCY CREDIT.** (2)
Residency credit for dissertation research after the qualifying examination. Students may register for this course in the semester of the qualifying examination. A minimum of two semesters are required as well as continuous enrollment (Fall and Spring) until the dissertation is completed and defended.
- ASC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.
- ASC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.
- ASC 771 ANIMAL SCIENCE SEMINAR.** (1)
May be repeated twice for a maximum of three credits.
- ASC 780 SPECIAL PROBLEMS IN ANIMAL DERIVED FOODS.** (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as FSC 780.)
- ASC 781 SPECIAL PROBLEMS IN GENETICS AND ANIMAL BREEDING.** (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser.
- ASC 782 SPECIAL PROBLEMS IN ANIMAL NUTRITION.** (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser.
- ASC 783 SPECIAL PROBLEMS IN REPRODUCTIVE PHYSIOLOGY (Subtitle required).** (1-4)
Intensive study or investigation of topics in physiology not covered in formalized courses. May be repeated under different subtitle to a maximum of nine credits. Prereq: Consent of graduate adviser.
- ASC 790 RESEARCH IN ANIMAL DERIVED FOODS.** (1-6)
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as FSC 790.)
- ASC 791 RESEARCH IN GENETICS AND ANIMAL BREEDING.** (1-6)
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser.
- ASC 792 RESEARCH IN ANIMAL NUTRITION.** (1-6)
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser.
- ASC 793 RESEARCH IN REPRODUCTIVE PHYSIOLOGY (Subtitle required).** (1-6)
Original investigation of mechanisms and problems related to mammalian reproduction. May be repeated under different subtitle to a maximum of nine credits. Prereq: Consent of graduate adviser.

Equine Science and Management

College of Agriculture
and School of Human
Environmental Sciences

The horse industry is a dynamic industry that encompasses not only the breeding, raising and training of horses but also the development of activities for the use of the horse in sports and recreation. The industry has a significant economic impact across the U.S. and world-wide.

Equine science and management involves the study and application of science and business concepts to the horse industry. Additional course work supports learning in areas that aid in breeding and raising horses and marketing the industry. Students come from varied equine backgrounds but have a common interest in the horse. Regardless of which breed of horse or activity focus students have, equine science and management majors will have the opportunity to combine their interest in the horse with a desire to become active participants in the horse industry by selecting either the equine science option or the equine management option.

The equine science option is for students who have a primary interest in horse production. The equine management option is designed for students who are interested in the business aspect of the horse industry. Students in equine science and management considering a career in veterinary medicine or graduate research can meet those goals in the degree program as well. Interested students need to consult with an advisor to ensure all specific academic requirements are met.

Career Opportunities

The horse industry is continually changing. Equine science and management graduates are needed in all aspects of the industry including production, business management and other related support industries.

Graduation Requirements

To earn the Bachelor of Science in Equine Science and Management, the student must have a minimum of 120 credit hours with at least a 2.0 grade-point average. A minimum of 45 credit hours must be from upper division courses (300 level and above). Remedial courses may **not** be counted toward the total hours required for the degree.

Plan of Study

As an equine science and management major you are required to develop an acceptable **Plan of Study** during your sophomore year for your junior and senior years. The plan must be signed by your advisor and returned to the Office of the Associate Dean for Academic Programs.

If you are an upper division transfer student (from another university or from another UK college or department) then you will submit your plan during the first semester you are enrolled in the program.

Students must complete the following:

College Required Hours

*GEN 100 Issues in Agriculture	3
Subtotal: College Required Hours	3

**Except for students who enter the College after having already completed the U.S. Citizenship requirement of the UK Core.*

UK Core Requirements

See the *UK Core* section of the 2011-2012 *Undergraduate Bulletin* at: www.uky.edu/Registrar/bulletinCurrent/ukc.pdf for the complete UK Core requirements. The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill UK Core areas. Students should work closely with their advisor to complete the UK Core requirements.

I. Intellectual Inquiry in Arts and Creativity

Choose one course from approved list 3

II. Intellectual Inquiry in the Humanities

Choose one course from approved list 3

III. Intellectual Inquiry in the Social Sciences

Choose one course from approved list 3

IV. Intellectual Inquiry in the Natural, Physical, and Mathematical Sciences

*CHE 105 General College Chemistry I 3

*CHE 111 Laboratory to Accompany General Chemistry I 1

V. Composition and Communication I

CIS/WRD 110 Composition and Communication I 3

VI. Composition and Communication II

CIS/WRD 111 Composition and Communication II 3

VII. Quantitative Foundations

MA 123 Elementary Calculus and Its Applications

or

MA 113 Calculus I 3-4

VIII. Statistical Inferential Reasoning

STA 210 Making Sense of Uncertainty:

An Introduction to Statistical Reasoning 3

IX. Community, Culture and Citizenship in the USA

GEN 100 Issues in Agriculture 3

X. Global Dynamics

Choose one course from approved list 3

UK Core Hours 30-32

**CHE 105/111 are part of the premajor requirement for Option A: Equine Science. Students pursuing Option B: Equine Management should choose from the approved list of courses to fulfill this area.*

–CONTINUED–

Equine Science and Management • 2

Option A: Equine Science

Premajor Requirements

BIO 150 Principles of Biology I	3
BIO 152 Principles of Biology II	3
CHE 105 General College Chemistry I	3
CHE 107 General College Chemistry II	3
CHE 111 Laboratory to Accompany General Chemistry I	1
CHE 113 Laboratory to Accompany General Chemistry II	2
ECO 201 Principles of Economics I	3
MA 123 Elementary Calculus and Its Applications	
or	
MA 113 Calculus I	3-4
Subtotal: Premajor Hours	21-22

Major Requirements

ASC 101 Domestic Animal Biology	3
EQM 101 Introduction to the Horse and the Horse Industry	2
EQM 105 Equine Behavior and Handling	2
ASC 310 Equine Anatomy and Conformation	2
ASC 320 Equine Management	3
EQM 351 Equine Health and Diseases	3
EQM 399 Equine Science and Management Internship	3
ASC 410G Equine Science	3
EQM 490 Capstone in Equine Science and Management	3
AEC 302 Agricultural Management Principles	4
Subtotal: Major Hours	28

Option A Hours

CHE 236 Survey of Organic Chemistry	3
ASC 325 Animal Physiology	3
ASC 364 Reproductive Physiology of Farm Animals	4
ASC 378 Animal Nutrition and Feeding	4
PLS 366 Fundamentals of Soil Science	4
PLS 510 Forage Management and Utilization	3
Subtotal: Option A Hours	21

Specialty Support Requirement

The student will choose, in consultation with an advisor, at least 18 hours of courses at the 200 level or above that will strengthen the program in an area of importance to the student. To aid in developing this area of study, a list of suggested courses is available to advisors. The list includes courses in animal sciences, plant and soil sciences, biosystems and agricultural engineering, agricultural economics plus other areas of study at UK.

Subtotal: Option A Specialty Support 18

Electives

Electives should be selected by the student to lead to the minimum total of 120 hours required for graduation

Subtotal: Electives minimum of 4

Total Minimum Hours for Program 120

Option B: Equine Management

Premajor Requirements

BIO 150 Principles of Biology I	3
BIO 152 Principles of Biology II	3
*CHE 104 Introductory General Chemistry	3
*CHE 106 Introduction to Inorganic, Organic and Biochemistry	4
ECO 201 Principles of Economics I	3
MA 123 Elementary Calculus and Its Applications	
or	
MA 113 Calculus I	3-4
Subtotal: Premajor Hours	19-20

**This sequence of chemistry courses will not satisfy requirements for admission to Veterinary School. Consult your advisor for more details.*

Major Requirements

ASC 101 Domestic Animal Biology	3
EQM 101 Introduction to the Horse and the Horse Industry	2
EQM 105 Equine Behavior and Handling	2
ASC 310 Equine Anatomy and Conformation	2
ASC 320 Equine Management	3
EQM 351 Equine Health and Diseases	3
EQM 399 Equine Science and Management Internship	3
ASC 410G Equine Science	3
EQM 490 Capstone in Equine Science and Management	3
AEC 302 Agricultural Management Principles	4
Subtotal: Major Hours	28

Option B Hours

STA 291 Statistical Methods	3
ACC 201 Financial Accounting I	3
ECO 202 Principles of Economics II	3
MKT 300 Marketing Management	3
AEC 305 Food and Agricultural Marketing Principles	3
AEC 320 Agriculture Product Marketing and Sales	3
HMT 320 Hospitality and Tourism Marketing	3
Subtotal: Option B Hours	21

Specialty Support Requirement

The student will choose, in consultation with an advisor, at least 18 hours of courses at the 200 level or above that will strengthen the program in an area of importance to the student. To aid in developing this area of study, a list of suggested courses is available to advisors. The list includes courses in animal sciences, plant and soil sciences, biosystems and agricultural engineering, agricultural economics plus other areas of study at UK.

Subtotal: Option B Specialty Support 18

Electives

Electives should be selected by the student to lead to the minimum total of 120 hours required for graduation

Subtotal: Electives minimum of 4

Total Minimum Hours for Program 120

College of Agriculture

EQM Equine Science and Management

EQM 101 INTRODUCTION TO THE HORSE AND THE HORSE INDUSTRY. (2)

An introduction to the horse and its basic biology, behavior and conformation. Additional subjects related to breeds, activities, the industry and current issues will also be covered. Prereq: Restricted to Equine Science and Management majors.

EQM 105 EQUINE BEHAVIOR AND HANDLING. (2)

This course covers basic equine behavior and how to handle horses safely in a variety of management situations. Students will use their understanding of equine behavior to develop management strategies and practices for all classes of horse. Prereq: EQM 101 and restricted to Equine Science and Management majors.

EQM 351 EQUINE HEALTH AND DISEASES. (3)

This course will focus on health issues affecting the horse industry. Students will learn about the diseases and parasites affecting horses in Kentucky and across the nation. In addition, discussion will focus on management practices used on horse enterprises to reduce incidence of disease and maintain health for breeding horses, performance horses and the recreational horse. Prereq: EQM 105 and major in Equine Science and Management B.S. degree program.

EQM 399 EQUINE SCIENCE AND MANAGEMENT INTERNSHIP. (1-6)

The equine internship is designed to provide students with experiences in career opportunities related to the horse industry. The internship gives students an educational experience that allows them to see the application of concepts learned in the classroom in an industry setting approved by the instructor. Prereq: Junior standing (minimum of 60 earned credits), at least 12 hours of EQM core courses, 40 hours of verifiable previous work experience in the equine industry, a GPA of 2.0 or above, and an approved learning contract.

EQM 490 CAPSTONE IN EQUINE SCIENCE AND MANAGEMENT. (3)

Discussion of the major issues impacting today's equine industry. Students will use concepts from core and discipline related courses to analyze a variety of scenarios related to the industry. The scenarios will range from production to enterprise management, but may also include issues that have the potential to impact all aspects of the industry. Prereq: Senior standing, major in Equine Science and Management degree.



Food Science

College of Agriculture
and School of Human
Environmental Sciences

Food science is the study of the transformation of biological materials into food products acceptable for human consumption. This requires studying diverse scientific disciplines related to food, including chemistry, engineering, microbiology, biochemistry, toxicology, and management; and effectively applying the industrial and practical aspects to product development, food processing, preservation, and marketing. The program is administered by the Department of Animal and Food Sciences and offers training in the basic sciences and in the fundamentals of food science.

Career opportunities in food industries include: management, research and development of new food products and ingredients, process supervision, quality control, procurement, distribution, sales, and merchandising. Positions include sales and services in allied industries; consulting and trade association activities; and promotional and educational services. Governmental agencies employ food scientists whose work is directed towards research, regulatory control, and the development of food standards.

Graduation Requirements

To earn the Bachelor of Science in Food Science, the student must complete a minimum of 128 semester hours with at least 45 hours from courses at the 300 level and above. A 2.0 grade-point standing (on a 4.0 scale) is necessary and remedial courses may **not** be counted toward the total hours required for the degree.

The Food Science program meets the requirements for accreditation by the Institute of Food Technologists and the National Organization of Food Science Professionals.

Plan of Study

As a food science major you are required to develop an acceptable **Plan of Study** during your sophomore year for your junior and senior years. The plan must be signed by your advisor and returned to the Office of Academic Programs.

If you are an upper division transfer student (from another university or from another UK college or department) then you will submit your plan during the first semester you are enrolled in the program.

Consult your academic advisor in developing your Plan of Study.

Each student must complete the following:

College Required Hours

GEN 100 Issues in Agriculture 3

Subtotal: College Required Hours **3**

University Studies Requirements

Hours

See "University Studies Program" on pages 84-88 of the 2010-2011 UK Bulletin for the complete University Studies requirements.

The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill University Studies areas. Students should work closely with their advisor to complete the University Studies Program requirements.

Courses marked with an asterisk (*) may also be used to satisfy University Studies requirements.

Inference-Logic

MA 123 Elementary Calculus and Its Applications 3

Natural Sciences

CHE 105 General College Chemistry I 3

CHE 107 General College Chemistry II 3

CHE 111 Laboratory to Accompany General Chemistry I 1

CHE 113 Laboratory to Accompany General Chemistry II 2

Social Sciences

AEC 101 The Economics of Food and Agriculture 3

Plus one additional course 3

USP Electives

BIO 150 Principles of Biology I 3

BIO 152 Principles of Biology II 3

Premajor Requirements

Hours

MA 132 Calculus for the Life Sciences 3

BIO 208 Principles of Microbiology 3

BIO 209 Introductory Microbiology Laboratory 2

CHE 236 Survey of Organic Chemistry 3

NFS 212 Introductory Nutrition 3

PHY 211 General Physics 5

STA 291 Statistical Method 3

Subtotal: Premajor Hours **22**

Major Requirements

Hours

Required:

FSC 107 Introduction to Food Science 3

AEN 340 Principles of Food Engineering 4

NFS 311 Nutritional Biochemistry **or**

BCH 401G Fundamentals of Biochemistry 3

FSC 306 Introduction to Food Processing 4

FSC 434G Food Chemistry 4

FSC 530 Food Microbiology 5

FSC 535 Food Analysis 4

FSC 536 Advanced Food Technology 4

Subtotal: Major Hours **31**

Specialty Support

Students must select 22 credits from the following suggested list of support courses:

AEC 201 Introduction to Farm and Natural Resource Finance 3

AEC 305 Food and Agricultural Marketing Principles 3

ABT/ENT 360 Genetics 3

CS 101 Introduction to Computing I 3

ECO 201 Principles of Economics I 3

FSC 304 Animal Derived Foods 5

FSC 395 Special Problem in Animal Science/Food Science 1-4

FSC 399 Experiential Learning in Animal Sciences/Food Science 1-6

FSC 430G Sensory Evaluation of Foods 3

FSC 538 Food Fermentation and Thermal Processing 4

FSC 540 Food Sanitation 3

NFS 304 Experimental Foods 3

Subtotal: Specialty Support **22**

Electives

Elective courses should be selected by the student to lead to the minimum total of 128 hours required for graduation.

Subtotal: Electives **minimum of 11**

TOTAL HOURS: **128**

College of Agriculture

FSC

Food Science

FSC 107 INTRODUCTION TO FOOD SCIENCE. (3)

A general basic food science course that deals with world food needs and available food supplies, types of food and nutritive values and use, food processing technology and distribution methods.

FSC 304 ANIMAL DERIVED FOODS. (5)

Principles of red meat, poultry, fish and dairy processing; physical and chemical composition and nutritive values of meat, dairy and egg products; structure and identification of muscle; inspection, grading, formulation, processing and preservation methods; organoleptic properties and consumer acceptance of processed meat, dairy and egg products. Lecture, three hours; laboratory, four hours per week. Prereq: GEN 106 or GEN 107.

FSC 306 INTRODUCTION TO FOOD PROCESSING. (4)

Commercial processing of foods including theory and use of heat exchangers, separators, freezers, air and vacuum dryers, evaporators, membrane separation, electrodialysis, emulsion formers, extruders, and irradiators. Physico-chemical changes in osmotic pressure, vapor pressure, pH surface tension, viscosity, emulsification and colloidal dispersions in processed foods will be discussed. Processing of waste streams will also be discussed. Prereq: CHE 105, CHE 107, CHE 236.

FSC 395 SPECIAL PROBLEM IN ANIMAL SCIENCE/FOOD SCIENCE. (1-4)

Independent study in animal and food science under the supervision of a faculty member. May be repeated for a maximum of eight credits. Prereq: Consent of appropriate instructor. (Same as ASC 395.)

FSC 399 EXPERIENTIAL LEARNING IN ANIMAL SCIENCES/FOOD SCIENCE. (1-6)

A field-based learning experience in animal sciences and food science under the supervision of a faculty member. May be repeated for a maximum of six credits as an elective on a pass/fail basis. Prereq: Consent of instructor and department chairperson and completion of a departmental learning contract before registration. (Same as ASC 399.)

#FSC 430 SENSORY EVALUATION OF FOODS. (3)

This course deals with the sensory evaluation methods used for food products based on flavor, odor, color, and texture. This includes techniques for measuring sensory attributes, instrumental analysis of foods, statistical analyses of data, and how sensory evaluation programs are utilized in the food industry. Prereq: STA 291 and FSC 306, or NFS 304 (prerequisite or concurrent enrollment).

FSC 434G FOOD CHEMISTRY. (4)

Chemical and physical properties of proteins, lipids, carbohydrates, pigments and food additives as they relate to food processing and food preservation. Lecture, three hours; laboratory, two hours. Prereq: BCH 401G or consent of instructor.

FSC 530 FOOD MICROBIOLOGY. (5)

Study of procedures for the enumeration and identification of foodborne microorganisms important in the food industry. Principles for controlling contamination and growth of microorganisms during production, processing, handling and distribution of food products. Lecture, three hours; laboratory, four hours. Prereq: BIO 108 and BIO 109 or equivalent.

FSC 535 FOOD ANALYSIS. (4)

Techniques and instrumentation used to determine the chemical composition of foods. Emphasis is placed on the principles of chemical analysis as it relates to foods and food processing. Lecture, two hours; laboratory, four hours per week. Prereq: FSC 434G.

FSC 536 ADVANCED FOOD TECHNOLOGY. (4)

Concepts of developing/improving new food products or food processing including: consumer awareness, marketing, ingredient specifications, product formulation, stabilization of product, packaging to meet shelf life goals, shelf testing of products, challenge testing, establishment of HACCP system, consumers testing, market testing, and introduction to the market. A capstone course, where all concepts of food science are used to extend or create new food products for the market place. Lecture, three hours; laboratory, two hours. Prereq: AEN 340, FSC 306, and FSC 335; or consent of instructor.

FSC 538 FOOD FERMENTATION AND THERMAL PROCESSING. (4)

Thermal processing of foods. The use of microorganisms in the preservation of raw foods and the manufacture of new foods. Manipulation and improvement of cultures to ensure production of desirable end products. Lecture, three hours; laboratory, two hours. Prereq: BIO 108, BIO 109, BIO 476G, FSC 530 or consent of instructor.

FSC

Food Science

FSC 540 FOOD SANITATION. (3)

A study of sanitation principles and techniques for ensuring the safety and wholesomeness of our food supply. Prereq: FSC 530 or equivalent.

FSC 603 INTEGRATED NUTRITIONAL SCIENCES III. (2)

This course is aimed at providing medical and health professional students with a working knowledge of dietary requirements and guidelines, nutritional assessment and nutritional requirements, food safety issues and nutritional needs throughout the lifecycle. Prereq: Health Professional Graduate Status. (Same as CNU/NS 603.)

FSC 630 ADVANCED MEAT SCIENCE. (4)

Advanced meat science with special reference to the histological, chemical, physical and microbiological properties as they relate to meat quality, organoleptic acceptability and processing procedures. Lecture, three hours; laboratory, two hours. Prereq: FSC 304, FSC 306 or equivalent; one course in histology or biochemistry or consent of instructor. (Same as ASC 630.)

FSC 636 FOOD PACKAGING. (2)

Detailed description of food packaging materials, composition and resistance to chemical and physical damage and their use in food systems as well as criteria for selection of packaging systems for specific food processing techniques will be presented. Methods of production, e.g.: blow mold, casting and extrusion; layering; lamination and co-extrusion; processing; and printing and sealing will be discussed. Prereq: FSC 536, FSC 538 or equivalent or consent of instructor.

FSC 638 FOOD PROTEINS. (3)

This course deals with chemical, biochemical, and enzymatic significance of proteins in food systems; physiochemical and functional properties of animal and plant proteins, their interactions with lipids, carbohydrates, flavors, minerals and other food components during processing and storage, and resulting modifications of food quality. Prereq: FSC 434G or consent of instructor.

FSC 640 FOOD LIPIDS. (3)

An advanced study of the physical, chemical, and biochemical significance of lipids in foods. Topics include the structure and function of lipids in post-harvest physiology, interaction with other food components, and the effect of lipids on the physical properties of foods during processing and storage. Prereq: One course in Food Chemistry or Biochemistry.

FSC 642 FOOD PIGMENTS. (3)

Course deals with the chemistry and biochemistry of color of different food products which influence consumers' purchase decision. Lecture topics include fundamental basis of food color and pigments, manipulation of food color, influence of processing on food color, and regulatory issues related to food pigments. Prereq: FSC 434G.

FSC 780 SPECIAL PROBLEMS IN ANIMAL DERIVED FOODS. (1-4)

May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as ASC 780.)

FSC 790 RESEARCH IN ANIMAL DERIVED FOODS. (1-6)

Problems involving original investigation. May be repeated for maximum of nine credits. Prereq: Consent of graduate adviser. (Same as ASC 790.)

CURRICULAR FRAMEWORK

	Number of Credit Hours
I. Intellectual Inquiry (one course in each area)	
Natural/ Physical/ Mathematical	3
Social Sciences	3
Humanities	3
Arts and Creativity	3
II. Composition and Communication	
Composition and Communication I (CIS or WRD 110)	3
Composition and Communication II (CIS or WRD 111)	3
III. Quantitative Reasoning (one in each area)	
Quantitative Foundations**	3
Statistical Inferential Reasoning	3
IV. Citizenship (one course in each area)	
Community, Culture and Citizenship in the USA	3
Global Dynamics	3

Credit Hour Total = 30 minimum*

*Some UK Core courses may be more than 3 credit hours

** Note that MA 109 is NOT approved as a Quantitative Foundations course. Students in a major requiring calculus will use calculus course (MA 113, 123, or 137) while students not requiring calculus should take MA 111, PHI 120, or another quantitative foundations course.

Appendix V-8. Enrollment in the three majors offered through the Department of Animal and Food Sciences.

year	ASC	EQM	FSC	total
2005-6	297		30	327
2006-7	296		23	319
2007-8	253*		21	274*
2008-9	236*		14	250*
2009-10	227	121	18	366
2010-11	225	165	26	416
2011-12	228	209	29	466

* Drop in enrollment during this period is due to the offering of the equine sciences major as an independent, untitled major pending senate approval.

Appendix V-9. Student Credit Hours in ASC (2005-2011).

Session	Course Level	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
8wk Summer	300-499	6	5	9	18	9	2
	600-799	5			6		3
	Session Total	11	5	9	24	9	5
Fall	Course Level						
	100-299	396	437	477	563	559	701
	300-499	817	893	1,100	1,117	1,091	971
	600-799	169	181	174	163	164	146
	Session Total	1,382	1,511	1,751	1,843	1,814	1,818
Spring	Course Level						
	100-299	350	337	331	311	351	375
	300-499	895	934	927	998	917	934
	500-599	42	33	33	18	18	21
	600-799	97	138	135	144	109	144
	Session Total	1,384	1,442	1,426	1,471	1,395	1,474
4wk Summer	Course Level						
	300-499	3		15	24	12	
	600-799			4			
	Session Total	3		19	24	12	
Academic Year Totals	Course Level						
	100-299	746	774	808	874	910	1,076
	300-499	1,721	1,832	2,051	2,157	2,029	1,907
	500-599	42	33	33	18	18	21
	600-799	271	319	313	313	273	293
	Total	2,780	2,958	3,205	3,362	3,230	3,297

Appendix V-9 (continued): Student Credit Hours in FSC (2005-2011).

Semester	Course Level	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
8wk Summer	300-499	2					
	600-799	.	.	.	.	.	.
	Session Total	2	.	.	.	.	.
Fall	Course Level						
	300-499	48	46	47	18	46	91
	500-599	123	68	108	99	133	167
	600-799	9	27	3	22	49	41
	Session Total	180	141	158	139	228	299
Spring	Course Level						
	100-299	75	132	51	75	90	87
	300-499	49	67	76	42	55	50
	500-599	64	32	88	32	28	76
	600-799	5	18	7	38	4	24
	Session Total	193	249	222	187	177	237
Academic Year Total	Course Level						
	100-299	75	132	51	75	90	87
	300-499	99	113	123	60	101	141
	500-599	187	100	196	131	161	243
	600-799	14	45	10	60	53	65
	Total	375	390	380	326	405	536

Appendix V-9 (continued): Student Credit Hours in EQM (2009-2011).

Semester	Course Level	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
Fall	100-299					120	188
	300-499	.	.	.	.	144	249
	Session Total					264	437
Spring	Course Level						
	100-299					92	122
	300-499	.	.	.	.	21	24
	Session Total					113	146
Academic Year Totals	Course Level						
	100-299					212	310
	300-499	.	.	.	.	165	273
	Total					377	583

Appendix V-10: Student evaluations of course and teaching for individual course prefix groups (ASC, FSC and EQM) taught by faculty from the Department of Animal and Food Sciences.

year	semester	ASC		FSC		EQM		college	
		course	teaching	course	teaching	course	teaching	course	teaching
2011	spring	3.4	3.5	3.3	3.2	3.6	3.8	3.4	3.5
2010	fall	3.3	3.3	3.6	3.5	3.7	3.6	3.4	3.5
	spring	3.3	3.3	3.5	3.5	3.5	3.5	3.4	3.4
2009	fall	3.3	3.4	3.7	3.7	3.2	3.1	3.3	3.4
	spring	3.4	3.5	3.7	3.8	3.5	3.5	3.3	3.4
2008	fall	3.1	3.2	3.8	3.9			3.3	3.4
	spring	3.4	3.5	3.6	3.8			3.3	3.3
2007	fall	3.3	3.4	3.9	3.9			3.4	3.4
	spring	3.4	3.5	3.4	3.5			3.3	3.4
2006	fall	3.4	3.5	3.6	3.5			3.3	3.4
	spring	3.3	3.5	3.5	3.6			3.3	3.4
2005	fall	3.4	3.5	3.5	3.5			3.3	3.4

Appendix V-11: Fulltime equivalents (FTEs) devoted to teaching over the review period.

Academic Year	Teaching FTEs
2011-2012	8.86
2010-2009	10.11
2009-2008	10.99
2008-2009	9.79
2007-2008	8.84
2006-2007	8.37
2005-2006	8.33

Animal and Food Sciences

Appendix VI

Undergraduate Food Sciences Program



May 17, 2010

Dr. William Boatright
University of Kentucky
Dept. of Animal and Food Sciences
412 W. P. Garrigus Bldg.
Lexington, KY 40546-0215

Dear Dr. Boatright:

I am pleased to inform you that the IFT Higher Education Review Board (HERB) approved your program, B.S. in Food Science, in regards to meeting the IFT Undergraduate Education Standards for Degrees in Food Science. Please ensure that students, faculty and administrators understand that only students enrolled in this particular emphasis/option are eligible for IFT scholarships.

Overall, your reviewers felt like you adequately addressed their concerns surrounding the sections IX and X of your application by providing information regarding your capstone course, industrial feedback on students in internship programs, and your graduate survey results. For your next review, HERB would like to see more qualitative data stemming from discussions with industry professionals involved with the internship program. In addition, they would also like to see how you have improved student participation in leadership activities.

We look forward to reviewing your program again in Fall 2014. Please note that the 2011 version of the IFT Guidelines will be in place for your next review. You can visit the "Guidebook" online, which will be updated, and the Journal of Food Science Education at www.ift.org for ideas and additional resources for improvement.

Thank you for your time and effort in submitting your application materials and your continued efforts in training the next generation of food scientists.

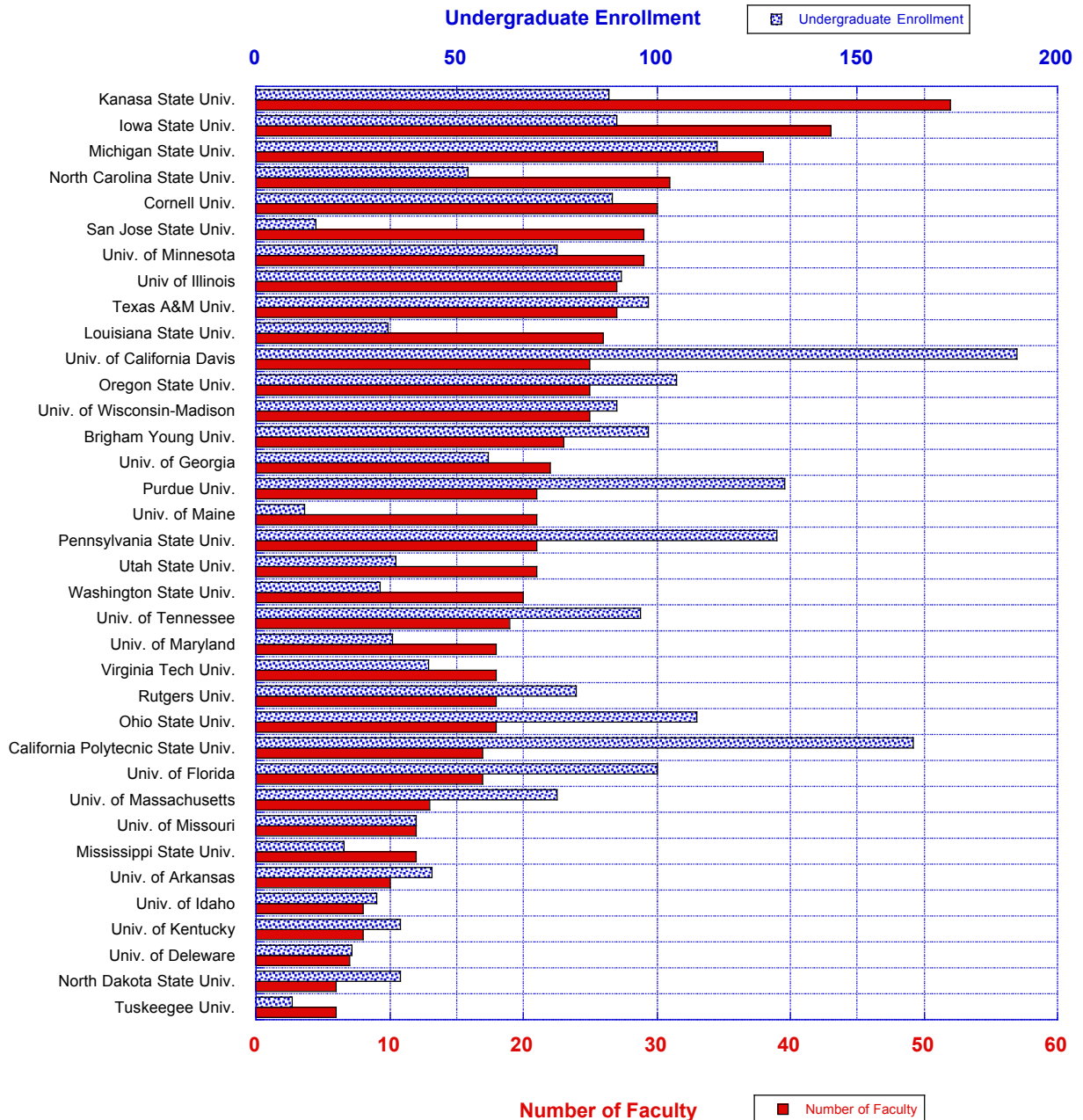
Sincerely,

Steven J. Mulvaney
Chair, Higher Education Review Board

C: George Miller, IFT Staff Coordinator

Appendix B

Faculty Numbers vs. Undergraduate Enrollments in IFT-Approved Food Sciences Programs



*Enrollment numbers from: *Food Technology*, 2011. Food Science Flourishes on Campus 3:48-52
Faculty numbers from departmental web-sites on July 26, 2011.

Appendix C. Food Science Undergraduate Program Outcomes and Modifications

Program outcomes for Food Science majors have been evaluated on an on-going basis. These program outcomes are periodically reviewed and revised by the food science faculty in response to input from stakeholders and educators.

Program Outcomes for Food Science Majors

Graduates of the University of Kentucky undergraduate Food Science program will be able to:

1. apply a thorough academic background in food science and related disciplines toward successful entry level employment within the food industry, or for transition to a food science graduate program
2. demonstrate relevant laboratory skills and a basic understanding of underlying principles of laboratory techniques.
3. apply a fundamental knowledge of food chemistry, microbiology, nutrition, processing, analyses and engineering toward food related research and product development.
4. apply quality assurance procedures in food processing such as Hazard Analysis and Critical Control Points (HACCP) toward the production of safe and nutritious foods.
5. be able to find, understand and adhere to federal laws and regulations in the manufacturing and sale of foods and food products.
6. demonstrate and ability to manage numerous tasks and assignments in an ethical and professional manner in order to efficiently meet deadline challenges.
7. demonstrate communication, computer and information technology skills necessary to obtain, analyze, interpret and convey scientific information to individuals or groups at various educational levels.

Summary of recent assessment results and program modifications

Food Science Course Evaluations. Food Science course evaluations performed by our students from 2005-2011 have generally been in the top 15 percentile, however in recent years these evaluations have shown a trend toward scores in the top 5 percentile.

**Mean of all Food Science Course Evaluations by Semester
Fall 2005-Fall 2010 (On a Four Point Scale)**

Semester	No. of Students	Quality of Teaching	Quality of the Course
Fall 2005	26	3.5	3.5
Spring 2006	33	3.5	3.6
Fall 2006	29	3.6	3.5
Spring 2007	46	3.4	3.5
Fall 2007	24	3.9	3.9
Spring 2008	37	3.6	3.8
Fall 2008	25	3.8	3.9
Spring 2009	30	3.7	3.8
Fall 2009	47	3.7	3.7
Spring 2010	28	3.5	3.5
Fall 2010	52	3.5	3.6
Spring 2011	41	3.2	3.3

Student performance in internships (FSC 399)

Companies that provided paid internships for students for the summers of 2009, 2008, and 2007 are listed below. All students were required to keep a journal. All students were required to check in with their advisor on a monthly basis. After successful completion of all internship, students conduct a presentation of their experiences to UK faculty and students. The lowest paid internship was 12.00/hr and the highest was \$17.00/hr. Jobs ranged from QA, R&D, manufacturing, to relief worker.

Internships presented	Students			Journal	Seminar
	2009	2008	2007		
Winchester farms Dairy	1	2	1	All	All
Martek		0	1	0	All
					All
Brown Forman	0	1	1	All	All
White Castle	1	2	1	All	All
KFC	0	0	1	All	All
D. D. Williamson	2	0	1	All	All
Purnell Sausage	1	0	1	All	All
Procter & Gamble	1	0	0	All	All
Nestle	1	2	2	All	All
Continental Mills	0	0	1	All	All
Hunts	0	0	1	All	All
Sara Lee	2	1	1	All	All
FB3	0	0	1	All	All
Wild Flavors	0	1	1	All	All
Bluegrass Dairies	0	1	1	All	All
Dudley's	1	0	0	All	All
Magee's Bakery	1	0	0	All	All
Old Chicago	1	0	0	All	All
Thomas Penway	1	0	0	All	All
Total	13	11	14		

Direct input of Food Industry experts into our capstone course (Advanced Food Technology – FSC 536) and other courses

As part of the 2001 IFT annual meeting's sessions on Food Science education, this course was highlighted as a model for the use of corporate research and development personnel to enhance student-learning opportunities (Hicks CL, 2001. IFT Annual Meeting, Abstract 73A-4). Industry experts engaged to teach course materials include:

- Bart Borkorski, CEO of Thomas Penway, Lexington KY.
- Sheri Klose, Senior R&D Supervisor, Brown Forman, Louisville KY,
- Laura Ekhart, Senior R&D Specialist, Dawn Foods, Louisville KY
- Edmond Joseph, R&D manager, Morgan Foods, Austin IN,
- Marlene Smothers, Senior Sweets Division Manager, Wild Flavors, Erlanger KY
- Dr. Linda Munson, Senior sensory specialist at Kentucky Fried Chicken, Louisville KY
- Bob Hosfeld, Senior R&D specialist, Kroger & Co. Cincinnati OH
- Joe Dunsmore, Senior Research Specialist, Blue Grass Dairies, Springfield KY
- Terri Watts. Senior Marketing Specialist, Portion Pak, Mason OH
- Jodi Renner-Nantz, Food Science Chemist, D. D. Williamson, Louisville KY,
- Daren Grey, R&D manager, Papa Johns, Louisville KY
- Dr. Yen Hsieh, Senior product analyst & Chemical Engineer, Proctor & Gamble, Cincinnati OH

Other courses that utilizes industrial input include:

Start of new course FSC 430, Sensory Evaluation. Sophie Hummer (Ph.D of Sensory science and biometrics) of Brown Forman provided feedback on the course and helped set the course content to make the course meet industrial needs. Sophie will also teaches one lecture.

FSC 306 Food Processing goes to five industries (White Castle, Winchester Farms, Blendpak, Pillsbury and Smuckers) and FSC 304 travels to Dean Foods, Purnell Sausage, Sara Lee, Tyson, etc. All of these food companies give feed back on our students and most take student interns.

Survey of recent graduates.

Based on the University of Kentucky Online Graduate survey (completed in July 2009) we found that all but one of our recent graduates had found

a job in the Food Science field. The one former student still interviewing had graduated only a couple of months prior to the interview. The level of satisfaction with the Food Science program for the areas surveyed was generally high. While the specific areas of food chemistry, analysis, microbiology and engineering were reported to be strong, there were some areas that appear to need improvement. Areas that we will continue to focus on include helping students manage their time effectively, to work in teams, to develop their leadership/interpersonal skills, and to improve their verbal and written communication skills. The 2011 alumni survey is currently in progress.

Implementation of a New Course, Sensory Evaluation of Foods (FSC 430G).

Feedback from industry stakeholders (such as Sophie Hummer, Ph.D in Sensory science and biometrics with the Brown Forman Company) indicated the need for a sensory analysis course at the University of Kentucky. An application for a new sensory analysis course was submitted to the University of Kentucky's Undergraduate Council in September 2007. The application was approved on January 21, 2009 and this course will be taught beginning in the fall of 2010. Dr. Hummer provided feedback on the course and helped set the course content to meet industrial needs. Dr. Suman and Dr. Hicks will teach this course and Dr. Hummer (with Brown Forman) will also teach one lecture. See appendix No. 4 of this application for documentation of the new course application approval and the course outline (Appendix D).

Increased participation in Food Science Club activities: During the last 6 years the level of activity by both undergraduates and graduate student in club activities has greatly increased. Two areas that have shown the most activity are fund raising (particularly participation in the Food Science/Dairy booth at the Kentucky State fair) and philanthropic activities by the club. The Kentucky State fair activities involve 4-5 days where at least one faculty and 3-6 students leave Lexington about 5 am to arrive at the booth in Louisville and set up for a 12-hour day of providing both hot food and dairy products. Including the 1.5-hour drive each way and the clean-up of the booth, these typically result in a 16-hour day for all involved. Funds obtained from this activity are used for a variety of club activities including transportation and lodging at national IFT meetings. A number of Food Science Club members have donated their time and club resources to help local charities. Every year members will prepare breakfast for the Lexington Ronald McDonald House, which provides room and board for family of hospitalized children. The club also regularly performs food drives to support local food banks and fund raisers to for "Dance Blue" to support children's cancer research. All Food Science students are invited to monthly meeting held by the Blue grass section of the Institute of Food Technologist. During the October 2009 meeting 16 students attend the Suppliers Night meeting. Their involvement in the exhibition hall set-up and clean up raises about \$3000 for undergraduate Food Science scholarships at UK. The Food Science club arranged 3 additional tours at food industries in 2009.

Continued support for undergraduate research opportunities: On average the undergraduate program at the University of Kentucky has 20 - 40 percent of seniors participate in a for-credit research project (Special Problems in Food Science, FSC 395). This allows undergraduates to perform an independent research project under the supervision of a faculty member. A FSC 395 project provides the student with additional opportunities to employ critical thinking skills and to put their food science training into use. It also strengthens their understanding of research as a possible component of their career path. These project are continually be supported by acquisition of "state of the art" laboratory instrumentation obtained under the research component of our food science program.

Animal and Food Sciences

Appendix VII

Facilities and Equipment

Appendix VII-1
Lab Assignments in WP Garrigus Building
Updated September, 2011

Room	Description	PI in charge	PI contact info	
			Phone	E-mail
2nd floor				
216A	Sensory evaluation	Gregg Rentfrow Youling Xiong	7-7550 7-3822	Gkrent2@uky.edu ylxiong@uky.edu
216B	Kitchen (sensory prep)	Gregg Rentfrow Youling Xiong	7-7550 73822	Gkrent2@uky.edu ylxiong@uky.edu
216C	Instron room	Youling Xiong	7-3822	ylxiong@uky.edu
216D	Dairy chemistry	Clair Hicks	7-7538	clhicks@uky.edu
216E	Storage	James Matthews	7-7513	jmatthew@uky.edu
218	Animal physiology/ nutrition	James Matthews James Boling	7-7513 7-1546	jmatthew@uky.edu jboling@uky.edu
218A	Walk-in cooler	James Matthews	7-7513	jmatthew@uky.edu
218B	Animal physiology	Phil Bridges	7-4877	pbrid2@uky.edu
218C	Chemical storage	Phil Bridges	7-4877	pbrid2@uky.edu
218D	Image analyzer	James Matthews	7-7513	jmatthew@uky.edu
220	Animal physiology/nutrition	James Matthews	7-7513	jmatthew@uky.edu
220A	Cell culture	James Matthews	7-7513	jmatthew@uky.edu
221	Food microbiology	Melissa Newman	7-5881	mnewman@uky.edu
4th floor				
416	Food lipids/flavors	William Boatright	7-5988	wboat1@uky.edu
417	Food proteins	Youling Xiong	7-3822	ylxiong@uky.edu
418	Food proteins	Youling Xiong	7-3822	ylxiong@uky.edu
419	Meat pigments/proteomics	Surendranath Suman	7-3428	S.Suman@uky.edu
420	Office/storage	William Silvia/Susan Hayes	7-7545	wsilvia@uky.edu
421	Physiology	William Silvia	7-7545	wsilvia@uky.edu
6th floor				
616	Equine nutrition/health	Kristine Urschel Laurie Lawrence Robert Colemon	7-7748 7-7509 7-9451	klurschel@uky.edu llawrenc@uky.edu rcoleman@uky.edu
618	Swine nutrition Equine nutrition/health	Merlin Lindemann Mary Rossano	7-7524 7-7552	mdlind1@uky.edu Mary.Rossano@uky.edu
619	Physiology	William Silvia	7-7545	wsilvia@uky.edu
620	Walk-in cooler			
621	Poultry nutrition Swine nutrition	Austin Cantor Gary Cromwell	7-7531 7-7534	acantor@uky.edu gcromwel@uky.edu
8th floor				
816 (and A,B)	Beef nutrition	David Harmon Kyle McLeod Eric Vanzant	7-7516 7-2892 7-9438	dharmon@uky.edu kmcleod@uky.edu evanzant@uky.edu
818 (and A,B,C,D)	Beef nutrition	David Harmon/Kyle McLeod Eric Vanzant/Don Ely	7-2717	dely@uky.edu
820	Walk-in cooler			
821	Nutrigenomics	David Harmom Kyle McLeod	7-7516 7-2892	dharmon@uky.edu kmcleod@uky.edu
Basement	Meat lab	Gregg Rentfrow (Jim May)	7-7550	Gkrent2@uky.edu
Basement	Food/dairy processing lab	Clair Hicks	7-7538	clhicks@uky.edu

Appendix VII-2
Major AFS Research Equipment in Garrigus Building

Room	Item Description	Model Number
10	CYCLOTEC SAMPLE MILL	1093
10	WILEY MILLS	
44	MEAT INJECTOR 16 NEEDLE SMART TECH	MH-16
44	MAINCA BOWL CUTTER	CM-14
44	VACUUM PACKAGING MACHINE	600A
45	ALKAR DEHYDRATOR STAINLESS STEEL	E-075
45	SMOKEHOUSE	450
49	ROSS INPACK JUNIOR A10 MODIFIED AIR AND VACUUM PACKAGING MACHINE	A10
49	KYSOR/WARREN TYPE 1 RETAIL DISPLAY REFRIGERATOR	LD1C1-10UN
49	LUNAIRE 32 CF STEADY STATE TEST CHAMBER	CEO932-4
49E	MIXER GRINDER HOLYMATIC GMG175	175
49E	SUPER PATTY MACHINE HOLYMATIC	54
49E	BATTER AND BREADING MACHINE	500540
205	MINISCAN XE P;US SPECTROPHOTOMETER	45/0_I
208	SMOKER GRILL PORTABLE	
216C	PARAMETER GENERATION AND CONTROL 4.5 CF TEMPERATURE / HUMIDITY CONTROL CHAMBER	9141-1110
216C	INSTRON TEXTURE ANALYZER	4301
216C	SPRAY DRYER	BUCHI 190
216E	BECKMAN OPTIMA ULTRA CENTRIFUGE	XL-80
216E	TECHNE HYBRIDIZATION OVEN	HB-1D
216E	CELL HARVESTER W/TT-24 AND PUMP	M-24
216E	SORVAL SUPERSPEED REFRIGERATED CENTRIFUGE	RC5BPLUS
218	BECKMAN TL-100 ULTRACENTRIFUGE	TL100
218	PERKIN ELMER BIO ASSAY PLATE READER	N4501000
218	HP 5890 SERIES II GAS CHROMATOGRAPH	58G0AII
218	NANOPURE INFINITY WATER PURIFICATION SYSTEM	D8991

218	EPPENDORF MICROCENTRIFUGE 5415C	5415
218B	FIRSTLIGHT UV TRANSILLUMINATOR	
218B	MASTERCYCLER THERMAL CYCLER	EPPENDORF MASTERCYCL
218B	LEICA TRINOCULAR MICROSCOPE W/CAMERA	
218B	EPPENDORF REFRIGERATED CENTRIGUGE	5415R
218B	BIOSPECTRUM 410 IMAGING SYSTEM	
218B	CENTRIFUGE WITH ROTORS BECKMAN ALLEGR	21R
218B	RAININ REFRACTIVE INDEX DETECTOR	RI-1
218B	RAININ DYNAMAX ABSORBANCE DETECTOR	0205-9074
218B	DUPONT CENTRIFUGE REFRIGERATED	RC-5B
218B	EPPENDORF REALPLEX 2 SYSTEM THERMAL CYCLER	
218D	FILM PROCESSOR KODAK M35Z	M35A
220A	INCUBATOR FISHER CO2 SINGLE TC 115V	116885
220A, 221	LAMINAR FLOW HOODS	36208-04
221	PAC CHECK HANDHELD TRIPLE GAS ANALYZER	333
221	SYNERGY 4 HYBRID MULTIMODE MICROPLATE READER	U-54MLFPTAD
221	FLASH & GROW COLONY COUNTER SYSTEM	6010
221	INCUBATORS	51
221	GRADIENT THERMAL CYCLER EPPENDORF	5331
221, 416, 818	BUCHI ROTARY EVAPORATOR	R-215
221	CHARM LUMINATOR SYSTEM	400
221	SPECTROPHOTOMETER SPECTRONIC BIOMATE	BIOMATZ3
221D	AUTOMATED FILLING UNIT	
221E	STEAM STILL	A1213
221E	AUTOCLAVE AMSCO	
221F	EDDY JET AUTOMATIC PLATER FOR SPIRAL SPR	1701

221F	VITEK 2 COMPACT 30 CARD MICROBIAL ID SYSTEM W/BENC	
416	MICROBALANCE	C-34
416, 416B	HP GAS CHROMATOGRAPHS	G1800A
416	WATER ACTIVITY MEASURING SYSTEM	25991
416B	HPLC W/DIODE-ARRAY DETECTOR	1100
416, 416B	5890/5972 GC/MS; 6890N GC/FID; 6890/5973 GC/MS	
417	SHIMADZU SPECTROPHOTOMETER	UVMINI-1240
417	BOHLIN RHEOMETER	CVO
417	NANOPURE WATER PURIFICATION SYSTEM	D11911
417	TA INSTRUMENTS DIFFERENTIAL SCANNING CALORIMETER	DSC 2920
417	FLAKED ICE MACHINE	AFE424
418	DENSITOMETER LASER ULTRASCAN LKB DFH	
418	SPECTROFLUOROMETER FLUOROMAX 3	FLMAX-3
418	NANO DEBEE HOMOGENIZER	NANO 30
419	LABCONCO FREEZONE BULK TRAY DRYER	7806021
419	ISOTEMP CHROMATOGRAPHY REFRIGERATOR	13-986-1368A
419	OPTICAL BENCH UV SPECTROPHOTOMETER	UV-2401 PC
419	SHIMADZU COMPACT TABLETOP TEXTURE ANALYZER EZ TEST	5 500N
419	AMERSHAM FRACTION 920 COLLECTOR	FRAC-920
419	FAT & MOISTURE ANALYZER	HFT2000
419	WATERS ALLIANCE HPLC WITH FLUORESCENCE AND PDA DETECTORS	SM4
419	TEMPERATURE CONTROLLER PELTIER	89090A
419	ANALYZER BRIDGE O2/CO2/CO	
419	HUNTER ASSOCIATES AND MINOLTA COLORIMETERS	
421	NIKON LABOPHOT 2 LIGHT MICROSCOPE	
421	SORVALL HIGH SPEED REFRIGERATED CENTRIFUGE	RC 5B
421	MICROPHOT FXA MAIN BODY	FXA

421	MICROPLATE READER, DYNATECH	MR5000
616	ALLIANCE HPLC SYSTEM WITH UV/VIS AND FLUORESCENCE DETECTORS	2695
616	LABCONCO 4.5L BENCHTOP FREEZE DRY SYSTEM	7750020
616	YSI SINGLE CHANNEL BIOCHEM ANALYZER	27005
616	SPECTROPHOTOMETER	80-2097-6Z
616	MOLECULAR DEVICES MICROPLATE READER	VERSAMAX
616	SORVALL LOW SPEED REFRIGERATED MICROCENTRIFUGE	21R
616	GENESYS 10S UV-VIS SPECTROPHOTOMETER	
618	ZEISS AXIO SCOPE A1 HAL50	A1 HAL50
618	THERMAL SCIENTIFIC SORVALL ST16TC 16/36 CENTRIFUGE	ST16
618	CROSSHEAD METRIC INSTRON	0
618B	SOXTEC HT12-2 PCS EXTRACTION SYSTEM	TECATOR
619	TRI-CARB LIQUID SCINTILLATION COUNTER	
619	DUPONT REFRIGERATED CENTRIFUGE	RC-3B
621	BOMB CALORIMETER SYSTEM2	1261EA
814	PORTABLE ULTRASOUND SYSTEM	DP2200VET
816	CENTRIVAP ACID CONCENTRATION SYSTEM	78100-00
816	NANOPURE WATER PURIFICATION SYSTEM	D4751D4751
816	TRANSONIC 400 BLOOD FLOWMETER	TS4-02
816A, 818	SPECTROPHOTOMETER WITH SIPPER UNIT	UV-160U
816A	KNOELAB 20 XTI CLINICAL CHEMISTRY ANALYZER	20XTI
816B	PERKIN ELMER ANALYST 200 ATOMIC ABSORPTION SPECTROMETER	B3150070
818	LABCONCO GLASSWARE DISHWASHER	LCF44204A
818	ISOTEMP VACUUM OVEN	ISOTEMP
818	ANKOM GAS PRODUCTION DETECTION SYSTEM	RFS
818, 616	MUFFLE FURNACE 1.26 CF	

818	CIRCULATING AIR OVEN, DOUBLE DOOR W/6 SHELVES	VWR1680
818	ZEISS IM-35 INVERTED MICROSCOPE	377
818	BOMB CALORIMETER	1281
818	TECATOR IN VITRO DIGESTOR 2520	10014133
818A	WATERS ALLIANCE HPLC SYSTEM WITH FLUORESENCE AND PDA DETECTORS	SM4
818A	WATERS FRACTION COLLECTOR II	WFC
818A	AUTO ANALYZER II	SCIC
818C	ANKOM FIBER ANALYZERS	A200
818D	VARIO MAX CARBON/NITROGEN ELEMENTAL ANALYZER	VARIO MAX
818D	HP 6890 GAS CHROMATOGRAPHS	G1530A
821A	BECKMAN INDUCTION DRIVE CENTRIFUGE	J2-21M
821C	METTLER AUTOMATIC TITRATOR	DL67

Animal and Food Sciences

Appendix VIII

Faculty Curriculum Vitae

FACULTY RESUME (2005-2011)

Name: Debra K. Aaron

Rank: Professor

Year of First Appointment: 1984

Specialization: Animal Breeding/Genetics

Distribution of Effort: Teaching: 75%
Research: 25%

Academic Background: Ph.D. Oklahoma State University
M.S. University of Kentucky
B.S. University of Kentucky

Committees, Awards, Offices

Elected/Appointed Offices: Director-at-Large, American Society of Animal Science (ASAS), 2009-2012 (3 yr)
Vice-President, National Block and Bridle Club, 2010-2012 (2 yr)
Editor, National Block and Bridle Club, 2006-2010 (2 yr)
Associate Editor, ASAS Educator's Toolbox
Editorial Board, HoofPrint ... *The Small Ruminant Magazine*, 2010-present

Awards: Advanced Degree Graduate of Distinction Award, Department of Animal Science, Oklahoma State University, 2010
Research Activity Award, University of Kentucky College of Agriculture, 2009

Committees: Production, Education and Research Council, American Sheep Industry Association, 2010-2012
Ad Hoc Communications Committee, ASAS, 2010-2012
Graduate Paper Competition Committee, Southern Section ASAS, 2008-2012 (Chair)

Teaching and Advising

Undergraduate Advisees: 32

Graduate Advisees: 1 (M.S.)

Number of Graduate Committees: 5 (M.S)

Courses Taught: ASC 102: Applications of Animal Sciences (3 hr, Spring)
ASC 362: Animal Genetics (4 hr, Spring)
STA 570: Basic Statistical Analysis (4 hr, Fall)
STA 671: Regression and Correlation (2 hr, Spring until 2011)
STA 672: Experimental Design (2 hr, Spring until 2011)

Teaching, Research and Extension Publications

Refereed Journal Articles: 2
Abstracts: 17
Conference Proceedings: 1
Invited Presentations: 8
Popular Press: 7
Websites: 1

Funding Support (2005-2011)

Internal-Competitive:	\$ 64,782 (PI)
	\$113,356 (Co-PI)
	\$178,138 (Total)
External-Gift:	\$36,000 (Co-PI)
Total Funding:	\$214,138

Summary of Teaching and Research Accomplishments:

Teaching: New courses have been developed and taught. The goal of ASC 102 (Applications of Animal Sciences) is to provide students with an introduction to the animal agriculture industries. New material has been developed and existing material has been updated. Beginning spring semester, 2011, teaching responsibilities expanded to include ASC 362 (Animal Genetics). A significant amount of time has been devoted to preparing and teaching this course for the first time. The goal is to provide students with a background in quantitative genetics supplemented with genomics. Up until Spring, 2011, teaching responsibilities included STA 570 (Basic Statistical Analysis), STA 671 (Regression and Correlation) and STA 672 (Experimental Design), so much effort was directed towards maintaining and improving those courses. Currently, only STA 570 is included in teaching responsibilities. Working with Block and Bridle, on the local and national level, has been an important part of the association with undergraduates.

Research: This program uses sheep at the C.Oran Little Research Center and beef cattle at the Eden Shale Farm to conduct research in breeding and genetics that will benefit producers. The main accomplishments are: 1) Development of a registered flock of White Dorper sheep through incorporation of hair sheep germplasm into a flock of Polypay ewes; 2) Implementation of procedures for managing infection of *Haemonchus contortus* (stomach worms) in sheep; 3) Development of strategic supplementation programs for increasing efficiency of cows and calves grazing endophyte-infected fescue.

Future Goals:

Teaching: Future goals include: 1) Continue to develop instructional techniques and materials for teaching undergraduate and graduate courses, improve PowerPoint® slides and supplemental material; 2) Expand use of electronic media in the classroom; 3) Extend educational experiences of undergraduates through extracurricular activities such as Block and Bridle and livestock-oriented internships.

Research: Future goals include: 1) Further improve Polypay, White Dorper and Hampshire genetics through use of genetic evaluations (National Sheep Improvement Association/LambPlan); 2) Continue to study management strategies for both intensive and extensive sheep production systems and conduct producer-oriented research in those areas; 3) Continue the search for an effective management strategy for alleviation of fescue toxicosis in beef cattle.

FACULTY RESUME (2005-2011)

Name: Donna M. Amaral-Phillips
Year of First UK Appointment: 1988
Average % DOE Research: 0%

Academic Rank: Extension Professor
Specialization: Nutrition
Teaching:

Extension: 100%

Academic Background

<u>Degree</u>	<u>Institution</u>
1. Doctorate of Philosophy	Iowa State University
2. Master of Science	North Carolina State University
3. Bachelor of Science	University of Connecticut

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. American Dairy Science Association- Director for National ADSA Production Division
2. American Dairy Science Association- President of Southern Branch
3. North American Intercollegiate Southern Dairy Challenge: Chair of Southern Dairy Challenge Oversight Committee, host co-coordinator
4. Extension Dairy Executive Council- Director. This council provides direction and information to national program leaders within CREES/NIFA to help in the promotion of the merits and impact of dairy extension faculty activities.

Awards

1. Distinguished Alumni Award from the Univ. of CT College of Agriculture and Natural Resources (2010)

Committees

1. Project Team Leader for DAIReXNET-national extension web resource (see programs for details)
2. Senior coordinator for North American Invitational 4-H Dairy Quiz Bowl
3. Dairy Extension Coordinator Department of Animal and Food Sciences
4. Advisor to UK Undergraduate Dairy Club
5. University Extension Area Committee
6. Numerous UK Ag committees for extension

Teaching, Research or Extension Publications (numbers only)

	2005	2006	2007	2008	2009	2010	Aug.2011	Total
Numbered Extension Publications	1	2		1				4
Unnumbered Fact Sheets	10	9	13	9	6	9	5	61
Articles at UK Dairy Website								89
Popular Press	6	1	5	6	3	2	4	27
Radio/TV	6	5	6	5	4	4	5	35
CD/DVD	1			1				2
Research Reports/Proceedings	3	3						6
Abstracts				1		1	1	3
Spreadsheets						1	1	2

Funding Support (2005-2011) Total funding- PI= \$818,302, Co-PI = \$38,300

1. Master Grazer Educational Program for Beef, Dairy, Sheep and Goats (funded 2005-2011-\$612,854- PI)
2. DAIReXNET: Total: \$205,448, (a) DAIReXNET (\$127,500 – PI – competitive) from National eXtension Initiative. D.M. Amaral-Phillips (PI), A. J. McAllister (UK), and other faculty from the Univ. of GA, MD, ID, and IL, Penn State, and NC State. and (b) USDA-AFRI Competitive Grant- (DAIReXNET (UK) subcontract 2 grants total amount \$77,948- PI) “Improving fertility during heat stress in lactating dairy cows” and “An integrated approach to improving dairy cow fertility”.
3. Beef Quality Assurance: Total \$8300
4. Dairy Extension Programs – Industry Gifts to support programs \$30,000

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

1. **DAIReXNET—Launched Oct. 2007:** DAIReXNET, a national, extension-driven web resource, is designed to meet the educational and decision-making needs of dairy producers, allied industry partners, extension educators and consumers. Through collaboration amongst dairy professionals, relevant, cutting-edge information and learning opportunities are provided which are science-based and peer-reviewed in a format accessible 24/7. Informational resources include (1) answers to frequently asked questions (423 FAQ's), (2) access to information by top experts in their fields of expertise (219 questions answered), (3) access to cutting-edge content currently in 13 subject areas (384 pieces of content available), (4) 13 learning modules, (5) 8 webinars presented live than archived (Topics include ways to improve public perception of dairies, mastitis control, managing transition dairy cows, and 3 webinars on environmental issues related to nitrogen, phosphorus and air quality issues), (6) searchable state and regional newsletters, (7) consumer links about the dairy industry and its products, and (8) news and lists of upcoming extension programs.

Leadership for this project is provided by 11 dairy extension professionals from across the United States. Additionally, our subject areas are led by 13 dairy experts from across the country. To date, 343 dairy professionals representing 40 universities and many allied industries have contributed to this resource. From April 1, 2009 through August 15, 2011 (dates Google Analytics are available), 727,931 pages have been viewed with an average of 14,128 unique visitors per month with people spending an average of 2:23 minutes per article/page. On average, each of our webinars has been viewed an average of 518 times. DAIReXNET and can be accessed through the following web address: (<http://www.extension.org/dairy+cattle>).

2. **Master Grazer Educational Program:** This program is a collaborative effort between UK agronomy, animal sciences, and National Resources Conservation Service (NRCS) to educating producers and extension and NRCS personnel on ways to improve the utilization and quality of grazed forages. This program has included (1) educational programs (4 to 7, 3-hr sessions / location) conducted at 24 locations for 730 producers, (2) 30 demonstration herds located throughout KY, (3) 4 - 2-day intensive KY Grazing Schools, (4) 8 locations for applied master grazer sessions on farms illustrating concepts, (5) development of producer grazing networks, and (6) expansion of training opportunities for agricultural agents and NRCS personnel (3 sessions held).
3. **Dairy Nutrition and Feeding Mgt Programming:** The KY Dairy Industry has undergone several financial (high feed costs and/or low milk prices) and weather related challenges within the last few years. These challenges definitely have negatively impacted the profitability and thus survivability of dairy farms in Kentucky and across the US. To help dairy farmers survive these challenges, we have conducted regional meetings, written peer-reviewed, newsletter articles published in electronic format on-line and provided to KY Extension Educators for use in local newsletters, radio programs and newspaper articles. In addition, I have answered farmer's individual questions regarding feeding programs and implementation of sound, balanced rations for both the dairy milking herd and replacements.
4. **Dairy Challenge** is a scholastic completion where undergraduates evaluate a dairy operation and develop and present their recommendations for ways to improve this operation. To prepare for this competition, teams have visited 5 to 10 dairy farms and prepared recommendations for these farms. Farmers were pleased with the visits and their neighbors are wanting to be part of the program. This program represents an integration of extension and instruction areas of the land-grant mission of universities at the same time training future dairy leaders.
5. **Dairy Production Shortcourses:** These intensive series of one-day programs are designed to help dairy producers learn more about implementation of sound production practices while they develop friendships and learn from one another. The farmers design these programs with the help of their county extension agents and state extension specialists. Each year the farmers have chosen 3 areas for a winter educational series.

Goals for Next Five Years in Extension: Expansion of programs in (1) Dairy Advancement Institute- Newly designed educational program for Amish/Mennonite families on understanding various concepts important in dairy production and forage management, (2) on-farm evaluation of feeding systems, (3) helping dairy producers understanding production records (formally AJM's educational responsibility.)

FACULTY RESUME (2005-2011)

Name: Leslie H. Anderson

Academic Rank: Professor

Year of First UK Appointment: 1997

Specialization: Extension

Average % DOE

Research: 0

Extension: 90

Teaching: 10

Academic Background

Degree	Institution
1. B.S.	University of Missouri
2. M.S.	Iowa State University
3. Ph.D.	The Ohio State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Southern Region Extension Committee - Chair
2. IEG-72 Chair
3. Southern Region Ruminant Animal Production Committee - Chair

Awards

1. Southern Section Young Educator Award (2007)
- 2.
- 3.

Committees

1. Beef Cattle Clearinghouse 2006-present
2. Beef Reproduction Action Team 2005 - present
3. SRIEG-72
4. Southern Region Extension Committee – 2006-2008
- 5.

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 0

Number of graduate students graduated: 0 M.S.: Ph.D.:

Number of graduate committees (excluding your students) M.S.: Ph.D.: 1

Courses Taught

ASC 364	Spring 2010, Spring 2011
ASC 406	Fall 2010, Fall 2011; team taught with Drs. Bullock and Lehmkuhler
ASC 601	Fall 2010; team taught with Dr. McCleod

Teaching, Research or Extension Publications (numbers only)

ES Refereed Journal Articles: 3	Invited Presentations: 22
Abstracts: 3	Fact Sheets:
Book Contributions:	Posters:
Conference Proceedings: 2	Popular Magazines: 42
Numbered Extension Publications: 7	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites): 79

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI: \$732,300
As Co-PI: \$1,248,118
Subtotal: \$1,980,418

External – Gift

As PI:
As Co-PI:
Subtotal:

Total funding received: \$1,980,418

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Integrated Resource Management (IRM). Chair (2004 to present) of the core IRM coordinating committee responsible for integration of IRM concepts into beef cattle production in Kentucky. The IRM concept includes evaluation of beef production and profitability by determining how cattle production is influenced by all factors of the farming operation. Collaborate with Plant Science, Agriculture Engineering, Agricultural Economics, and the LDDC.

Master Cattleman. Major educational program for beef producers in Kentucky. Master Cattleman consists of 10, 4-hour sessions in which beef producers are taught most aspects of beef production principles and practices. Collaborate with Plant Science, Agriculture Engineering, Agricultural Economics, and the LDDC.

Beef Cattle Clearinghouse. Co-Leader in a national effort to provide easy internet access to quality beef production educational materials from across the United States. National effort with collaboration between UNL, KSU, SDSU, OkSU, UTN, and NDSU.

Reproduction Action Team. Member of the national Reproduction Action Team. This committee consists of Extension Specialists, veterinarians, and industry professionals from across the country. The Reproduction Action Team developed the symposium entitled *Applied*

Reproductive Strategies in Beef Cattle. This symposium has been presented at 15 different sites reaching all geographical regions of the US. The purpose of these symposia was to educate beef producers, veterinarians, and industry professionals on the latest reproductive management protocols and how to incorporate these protocols into a production scenario. National effort with collaboration between MU, UFL, UNL, KSU, SDSU, UTN, CSU, VTU, and NDSU.

Allied Production and Management (A.I.M.). The A.I.M. program encourages producers to form production and marketing alliances in order to take advantage of economies of size and to increase marketability by cooperative sales. Duties include county meetings and farm visits to provide producers with information necessary to form a production and marketing alliance.

Kentucky Heifer Development Program (KHDP). Program designed to assist beef producers by establishing heifer development centers and heifer development sales. The centers are responsible for nutritional, health and reproductive management of the heifers. Producers then select their replacement heifers and the remaining are sold in a cooperative sale. Producers also participate in educational programs to become familiar with the development techniques.

Advanced Master Cattleman. The Advanced Master Cattleman program is designed for producers who want a level of education above the Master Cattleman curriculum. The goal of Advanced Master Cattleman is to move these producers to the next level of beef production. The intent of Advanced Master Cattleman is to actually change producer behavior rather than just provide information. In general, Advanced Master Cattleman sessions will be more in-depth, and in appropriate subject areas, may also be more hands-on. Each interested multi-county Advanced Master Cattleman group will choose topics that are needed most in their area. Therefore, the topics covered in each area will not necessarily be the same. Collaborate with Plant Science, Agriculture Engineering, Agricultural Economics, and the LDDC.

Applied Beef Production Practices. Often, producers learn best when they apply the protocols discussed in class. On-farm demonstrations have been developed to help illustrate the production and economic advantages of applying proper beef and forage production practices. Short-, moderate-, and long-term projects have been developed by UK Specialists as templates for local use. The producer, ANR Agent, KBN Facilitator, and UK Specialist will implement the project then document the impact on production and profitability. These demonstrations will provide opportunity for hands-on training in a real-world environment while collecting valuable data to document the impact of our programs. Collaborate with Plant Science, Agriculture Engineering, Agricultural Economics, and the LDDC.

Cow College. Cow College was the first producer-oriented advanced training session in Kentucky. Cow College is a 9-day instructional event that includes both hands-on and lectures on all aspects of beef cattle production. The course is divided into five separate sessions. The sessions included training in beef cattle nutrition, health management, working facilities, economics, beef cattle breeding, reproductive management and live animal and carcass evaluation.

Management and Genetics (MAG) – 60. Newly funded program designed to increase the use of estrus synchronization and AI in commercial cow-calf operations. The cost of ESAI will be shared (12,000 females over 3 breeding seasons) and the AI-sired progeny will be cooperatively marketed as age-, source-, and genetically-verified performance calves.

Goals for Next Five Years

Teaching: Work with Drs. Bullock and Lehmkuhler to develop Beef Cattle Science into a course that helps teach the students how to incorporate science into the production of beef cattle.

Research: Continue to conduct applied research that will support my extension programs.

Extension: Increase our web-based educational content and instructional abilities. Continue to develop new educational opportunities to keep our producers at the forefront of the industry and to cement Kentucky's status as the number one feeder calf state in the US.

FACULTY RESUME (2005-2011)

Name: Jeffrey M. Bewley

Academic Rank: Assistant Extension Professor

Year of First UK Appointment:2008

Specialization: Dairy Systems Management

Average % DOE

Research: 0

Extension:90

Teaching:10

Academic Background

Degree	Institution
1.PhD	Purdue University
2.MS	University of Wisconsin-Madison
3.BS	University of Kentucky

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Farm Animal Integrated Research (FAIR) 2012 Planning Committee
2. SERA15: Competitiveness and Sustainability of the Southern Dairy Industry (Southern Dairy Conference), Chairman, 2011
3. Southern American Dairy Science Association Secretary-Treasurer, 2011-2012

Awards

1. College of Agriculture Early Career Outstanding Teacher Award, 2011
2. Midwest American Dairy Science Association Young Dairy Scholar, 2008

Committees

1. First North American Conference on Precision Dairy Management Planning Committee, 2010
2. NC1042: Management Systems to Improve the Economic and Environmental Sustainability of Dairy Enterprises, 2009-present
3. Kentucky Dairy Development Council Education Committee, 2008-present
4. Southeast United Dairy Industry Association Scientific Advisory Board, 2008-present
5. Kentucky Dairy 2020 Vision Congress Planning Committee, 2010

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 5

Number of graduate students graduated: M.S.: 0 Ph.D.: 0

Number of graduate committees (excluding your students) M.S.: 3 Ph.D.: 1

Courses Taught

ASC 783/GEN 300: Integrated Dairy Production Systems Assessment

ASC 420G: Dairy Cattle Science

ASC 382: Livestock Production Principles

ASC 205: Livestock, People, and Their Interactions

GEN 302: International Study Abroad: Scotland Dairy

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 9	Invited Presentations:15
Abstracts: 34	Fact Sheets: 6
Book Contributions: 0	Posters:0
Conference Proceedings: 4	Popular Magazines:32
Numbered Extension Publications:0	Patents/Genbank Register:
Reports of Progress:0	Other (e.g. websites):28

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$61,823

As Co-PI:

Subtotal: \$61,823

External – Competitive

As PI:

As Co-PI: \$10,305

Subtotal: \$10,305

External – Gift

As PI: \$298,847

As Co-PI:

Subtotal: \$298,847

Total funding received: \$370,975

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Since joining the faculty in 2008, I have worked to establish a nationally recognized program in dairy systems management with combined efforts in extension, teaching, and research. My extension program has focused on improving dairy cow housing environments, reducing on-farm somatic cell counts, increasing the adoption of technologies on dairy farms, and improving the economic sustainability of Kentucky dairy farms. My teaching program has expanded to include four courses where I attempt to incorporate real-world experiences into the classroom and in varied extra-curricular activities. My research program is focused primarily on the use of Precision Dairy farming technologies and the improvement of dairy cow housing environments. In each case, I try to take advantage of the natural synergies among the three land grant missions.

Goals for Next Five Years

Teaching: Increase enrollment in courses, particularly graduate level courses. Increase participation in the UK Dairy Club and internships. Continue involvement with international study abroad trips.

Research: Obtain external funding for Precision Dairy and housing research.

Extension: Increase the use of decision support tools among dairy producers. Improve dairy cattle housing in Kentucky. Reduce on-farm SCC.

FACULTY RESUME (2005-2011)

Name: William L. Boatright

Academic Rank: Professor

Year of First UK Appointment: 1995

Specialization: Food Chemistry

Average % DOE

Research: 75

Extension: 0

Teaching: 25

Academic Background

Degree Institution

1. Bachelor of Science in Food Science, University of Washington, June 1990
2. Master of Science in Food Science, University of Arkansas, May 1992
3. Doctorate in Food Science, University of Arkansas, August 1994

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Food Science Group Leader, Department of Animal & Food Sciences (2009-Current)

Awards

1. Univ. of Kentucky Excellence in Research, Wethington Awards, 2005-07, 2009-10

Committees

1. Search Committee Chair, Food Science Research/Teaching faculty (Alderton) 2005-06.
2. Search Committee member, Food Science Extension/Teaching faculty (Mikel) 2005-06
3. Member of the Animal & Food Sciences Laboratory Safety Committee, 2007

Teaching – Advising:

Total number of undergraduate advisees: 0

Total number of graduate advisees: 1

Number of graduate students graduated: 1 M.S.: 0 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.: 7

Number of post-doctoral scholars: 1

Courses Taught:

FSC 535 Food Analysis (4 hrs.) – teach every fall semesters.

FSC 434 Food Chemistry (4 hrs.) – teach every other spring semester (even years).

FSC 640 Food Lipids (3 hrs.) – teach every other spring semesters (odd years).

FSC 399 Experimental Learning in Food Sciences (3 hrs.) – taught one student in 2009.

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 11	Invited Presentations: 0
Abstracts: 10	Fact Sheets: 0
Book Contributions: 1	Posters: 4
Conference Proceedings: 0	Popular Magazines: 0
Numbered Extension Pubs: 0	Patents/Genbank Register: 1
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: 0; As Co-PI: 0

Subtotal: 0

External – Competitive: 2 USDA NRI grants

As PI: \$622,972; As Co-PI: 0

Subtotal: \$622,972

External – Gift

As PI: 0; As Co-PI: 0

Subtotal: 0

Total funding received: \$622,972 (\$149,992 was a sub-contract to the Univ. of Memphis)

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Since 2004 my research program has received three (3) back-to-back-to-back USDA-NRI grants. This series of nationally competitive grants is the result of continued development of novel research concepts followed-up with the implementation of a productive research program with novel findings that have lead to new discoveries. We are currently on the third year of a three-year NRI project in collaboration with Dr. M. Shah Jahan, Chair of the Physics Department at the University of Memphis. This multidisciplinary approach has proven to be extremely beneficial in the development of novel ideas and approaches to explain the development and behavior of free radicals in foods.

The food science program at the University of Kentucky provides an Institute of Food Technologist (IFT) accredited curriculum. Not only does the IFT accreditation process assure coverage of fundamental food science components, it stresses numerous disciplines critical to producing a well-rounded professional graduate. In order for students to apply for an IFT undergraduate scholarship they must be enrolled in and accredited program. As the Food Science group leader since March 2009, I was responsible for organizing and completing the extensive application, and meeting with the IFT Higher Education Review Board. In May of 2010, the UK Food Science program received IFT accreditation for another 6 years. Also, during this period we have made significant progress toward improving the awareness of the food science discipline among Kentucky's high school students.

Goals for Next Five Years

Teaching: To maintain levels of undergraduate Food Science enrollment between 30 and 50, and continue to develop and update the UK undergraduate food science program.

Research: Maintain the currently level of nationally competitive funding, quality of research accomplished, and graduate and post-graduate training.

Extension: N/A

FACULTY RESUME (2005-2011)

Name: James A. Boling

Academic Rank: Professor

Year of First UK Appointment: 1967

Specialization: Beef Cattle Nutrition and Metabolism

Average % DOE

Research: 94.0

Extension: n/a

Teaching: 6.0

Academic Background

Degree	Institution
1. B.S.	Clemson University, Clemson, SC
2. M.S.	University of Wisconsin, Madison, WI
3. Ph.D.	University of Wisconsin, Madison, WI

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. - - -
2. - - -
3. - - -

Awards

1. Fellow, American Society of Animal Sciences.
2. Sturgill Award for Contributions To Graduate Education – UK.
3. Thomas Poe Cooper Research Award.

Committees

1. University Joint Committee on Honorary Degrees.
2. College of Agriculture Appointment, Promotion and Tenure Committee.
3. Department of Animal and Food Sciences Promotion Committee.
4. Chair, Director of Gluck Equine Research Center Search Committee.
5. Chair, Graduate Student Award Committee, Gamma Sigma Delta.

Teaching – Advising

Total number of undergraduate advisees: None

Total number of graduate advisees: Co-advisor - 1

Number of graduate students graduated: Co-advisor M.S.: 1 Ph.D.:

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.: 5

Courses Taught

ASC 771 – Graduate Seminar in Animal and Food Sciences

Taught course every semester from Spring 2005-Fall 2011, except Spring 2007. (Total semesters taught = 13).

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 8	Invited Presentations: 4
Abstracts: 31	Fact Sheets: -
Book Contributions: -	Posters: -
Conference Proceedings: 2	Popular Magazines: -
Numbered Extension Publication: -	Patents/Genbank Register: 40
Reports of Progress: 6	Other (e.g. websites): 2

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:
As Co-PI: \$582,564
Subtotal: \$582,564

External – Competitive

As PI: -
As Co-PI: -
Subtotal: -

External – Gift

As PI: -
As Co-PI: -
Subtotal: -

Total funding received: \$582,564

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Since returning to the faculty, my teaching responsibility has been ASC 771 – Graduate Seminar. I have worked at helping students master the skills of researching a topic, review the literature and communicate the data to an educated audience in a successful manner.

The research conducted since 2004 has included Age Related Influences on Nutrient Metabolism in Beef Cows, Effects of Toxic Fescue Alkaloids on Metabolic Responses in beef Cows and Grazing/Growing Steers. Also, a collaborative development of a Calan gate feeding system at Princeton has resulted in excellent results in cattle fed individually but managed in a group system. My collaborators have been Dr. Jamie Matthews and Dr. Roy Burris.

Goals for Next Five Years

Teaching: Continue to teach the Graduate Seminar and work with other graduate students to develop research and communication skills.

Research: Continue current research projects in the areas designated above and amplify the research program through additional funding and collaboration.

Extension: N/A

FACULTY RESUME (2005-2011)

Name: Phillip Bridges

Academic Rank: Assistant Professor

Year of First UK Appointment: 2011 (July)

Specialization: Reproductive Biology

Average % DOE

Research: 77

Extension: 0

Teaching: 23

Academic Background

Degree	Institution
1. B.Sc.Agr.	University of Sydney, Australia
2. M.S.	University of Hawaii
3. Ph.D.	West Virginia University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. -
- 2.
- 3.

Awards

1. -
- 2.
- 3.

Committees

1. -
- 2.
- 3.
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 0

Number of graduate students graduated: M.S.: 0 Ph.D.: 0

Number of graduate committees (excluding your students) M.S.: 0 Ph.D.: 0

Courses Taught 0

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 0	Invited Presentations: 0
Abstracts: 0	Fact Sheets: 0
Book Contributions: 0	Posters: 0
Conference Proceedings: 0	Popular Magazines: 0
Numbered Extension Publications: 0	Patents/Genbank Register: 0
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI:
As Co-PI: R01 HD061617-01A2, 5% effort = \$3850 per year (Total costs per year: \$248,534)
K12 DA014040-11, \$13,000 to the PI for animals and supplies
Subtotal: 3850 + 13,000 = \$16,850

External – Gift

As PI:
As Co-PI:
Subtotal:

Total funding received: \$16,850

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Two research proposals are currently pending review at NIH
One manuscript is being prepared for publication
IACUC approval for the use of domestic animals for research is approved
One HATCH proposal is being prepared for submission
Discussions are underway for inclusion on one multi-state regional project
One graduate student has tentatively accepted placement in the PIs lab for graduate studies (Ph.D.) in A&FS, pending completion of M.S. in Veterinary Science.

Goals for Next Five Years

Teaching: ASC 364, Sections 001, 002 and 003. Reproductive Physiology of Farm Animals. Delivered each Spring semester. Expand teaching responsibilities with the needs of the Dept.

Research: Develop an extramurally funded research program addressing the regulation of fertility in domestic species. Train/mentor graduate and undergraduate students.

Extension: Contribute with the needs of the Dept. and College.

FACULTY RESUME (2005-2011)

Name: K. Darrh Bullock

Academic Rank: Extension Professor

Year of First UK Appointment: 1992

Specialization: Beef Cattle Genetics

Average % DOE

Research:

Extension: 96%

Teaching: 4%

Academic Background

Degree	Institution
1. PhD	University of Georgia
2. MS	Auburn University
3. BS	Auburn University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Board of Director – National Beef Cattle Evaluation Consortium
2. Coordinator of Education Programming – National Beef Cattle Evaluation Consortium
- 3.

Awards

1. Whiteker Award for Excellence in Extension
2. Continuing Service Award – Beef Improvement Federation
- 3.

Committees

1. College Promotion and Tenure Committee
2. Department Awards Committee
3. College Integrated Resource Management Committee
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees:

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.:

Ph.D.:

Courses Taught

ASC 406 – Beef Cattle Science

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 1	Invited Presentations: 14
Abstracts: 2	Fact Sheets: 1
Book Contributions:	Posters:
Conference Proceedings: 2	Popular Magazines: 3
Numbered Extension Publications: 7	Patents/Genbank Register:
Reports of Progress: 2	Other (e.g. websites): 2

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI: \$557,060
As Co-PI: 1,616,338
Subtotal: \$2,173,398

External – Gift

As PI: \$6,424
As Co-PI:
Subtotal: \$6,424

Total funding received: \$2,179,822

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

The overall objective of my Extension efforts is to make Kentucky beef producers more profitable through better beef cattle genetic practices. I coordinate three programs/projects and I have a major role in four others. The Cattle Genetic Improvement Program, which I co-developed and wrote the beef genetic guidelines, was selected by the Kentucky Ag Development Board as the first “Model Program” for county funding. In the most recent year with information reported (FY2008); \$804,234 were distributed for cattle genetic purchases (bulls, heifers and semen) in 23 counties. I co-coordinate a new, major educational effort for ANR agents that allow them to become “Certified in Beef Cattle Production”. I am heavily involved in the extremely successful Master Cattleman Educational Program. I have been actively involved, as PI or Co-PI, in securing over \$2 million dollars in program funding. I serve as the Beef Group Coordinator and Extension Coordinator. I recently took responsibility for instruction of the Beef Cattle Science class (ASC 406).

Goals for Next Five Years

Teaching: Continue teaching ASC 406

Extension: Continue to seek funding to support Extension programs. Continue working with college’s IRM committee to provide holistic beef cattle educational programming to Kentucky beef producers. Continue providing Beef Cattle Certification efforts for ANR agents.

FACULTY RESUME (2005-2011)

Name: Walter Roy Burris

Academic Rank: Extension Professor

Year of First UK Appointment: 1981 Specialization: Beef cattle nutrition

Average % DOE Research: Extension: 100 Teaching:

Academic Background

Degree	Institution
1. Ph.D.	University of Kentucky
2. M.S.	University of Kentucky
3. B.S.	Tennessee Technological University

Awards

1. Fellow – American Society of Animal Science
2. Extension Award – Southern Region, American Society of Animal Science
3. Outstanding Program Award – Kentucky Association of Extension Professionals

Committees

1. Mid-South Stocker Association
2. University of Kentucky College of Agriculture Diversity Committee
- 3.
- 4.
- 5.

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:	3	Invited Presentations:	16
Abstracts:	12	Fact Sheets:	
Book Contributions:	1	Posters:	
Conference Proceedings:	3	Popular Magazines:	
Numbered Extension Publications:	5	Patents/Genbank Register:	
Reports of Progress:	4	Other (e.g. websites):	

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI: \$ 812,860
As Co-PI: \$ 920,787
Subtotal: \$1,733,647

External – Gift

As PI: \$5,500
As Co-PI: _____
Subtotal: \$5,500

Total funding received:

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Part of interdisciplinary team that has developed Master Cattleman, Advanced Master Cattleman, Master Grazer, Master Stocker and Mid-South Stocker programs.

Research has focused on By-product utilization, forage systems and selenium supplementation of beef cattle.

Goals for Next Five Years

Teaching:

Research: More intensive research with trace element nutrition.

Extension: Delivery of “cutting edge” programs in beef management and grazing technology.

CAMARGO FACULTY RESUME (2005-2011)

Name: Fernanda C. Camargo

Academic Rank: Assistant Professor

Year of First UK Appointment: 2007

Specialization: Equine Extension Specialist

Average % DOE

Research: 0%

Extension: 80% Teaching: 20%

Academic Background

Degree	Institution
1. Ph.D.	University of Kentucky
2. Doctor of Veterinary Medicine	Universidade Estadual de Londrina - Brazil

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. American Youth Horse Council – Board of Directors (2008-present), Chair and Host of 2010 AYHC National Symposium.
2. Kentucky Horse Council – Board of Directors (2009-present)
3. Eastern National 4-H Horse Roundup – Board of Directors (2007-present)

Awards

1. Employer Partner of the Year, awarded by James Stuckert Career Center - 2009

Committees

1. American Youth Horse Council – Symposium committee and Publications committee
2. Eastern National 4-H Horse Roundup – Chair of Facilities and Logistics; Hippology committee
3. Kentucky Horse Council – Education, Competition and Youth committees
4. Saddle up Safely – Executive Committee
5. Animal and Food Sciences Social Committee

Teaching – Advising

Total number of undergraduate advisees: 40

Total number of graduate advisees:

Number of graduate students graduated: M.S.: Ph.D.:

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.:

Courses Taught

ASC 310 - Equine Anatomy and Conformation, Spring 2009 - present

EQM 351 – Equine Health and Disease, Fall 2009 - present

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 4	Invited Presentations: 30
Abstracts: 1	Fact Sheets: 17
Book Contributions: 3	Posters:
Conference Proceedings: 6	Popular Magazines:
Numbered Extension Publications: 17	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites): 85

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: 16,500.00
As Co-PI: 50,152.00
Subtotal: 66,652.00

External – Competitive

As PI: 2,000.00
As Co-PI:
Subtotal: 2,000.00

External – Gift

As PI: 122,419.50
As Co-PI:
Subtotal: 122,419.50

Total funding received: 191,071.50

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

I have developed one undergraduate course and restructured another one. Both of them have enrollment of 45-60 students each semester. Student evaluations reflect that both courses are highly regarded and sought after.

I have and continue to provide leadership to a very strong youth extension program, the Kentucky 4-H Horse Program. Under my leadership we have created a certification training for the volunteer leaders, so they can, more capably, educate the youth involved in the program. Within the certification program, I have chosen the curriculum and created educational materials to accompany it. I have also created numerous educational hands-on workshops and training clinics that had never been offered before. These clinics serve both adults and youth.

Goals for Next Five Years

Teaching: Incorporate more wet labs for ASC 310. As a result of ASC 310 and ASC 101, an anatomy lab was built at Ag Science North. This will enable me to offer more dissection labs to the students.

Research: Develop applied horse research projects that will benefit horse owners.

Extension: Continue to develop educational programs for both adults and youth. I want to develop a video library with educational topics and make it available to my extension clients. I also want to create a more interactive webpage for the 4-H Horse Program and also for the adult extension program.

FACULTY RESUME (2005-2011)

Name: AUSTIN H. CANTOR **Academic Rank:** Associate Professor

Year of First UK Appointment: 1980 **Specialization:** Poultry Nutrition

Average % DOE **Research:** 51 **Extension:** **Teaching:** 49

Academic Background

Degree	Institution
1. Ph.D	Cornell University
2. M.A.	Teachers College, Columbia University
3. B.S.	Cornell University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Section Editor, Journal of Applied Poultry Research
2. Editorial Board of Animal Feed Science and Technology
3. Editorial Board of Emirates Journal of Agricultural Sciences

Awards

Committees

1. Review Panel, USDA Office of Scientific Quality Review, Nutrition and Genetics, 2007
2. National FFA Poultry Career Development Event Committee
3. Co-Chair, Multi-State Poultry Feeding & Nutrition Conference Organizing Committee
4. COA Precision Resource Management Grant Review Committee
5. Department Social Committee
6. COA Student Recruitment Committee

Teaching – Advising

Total number of undergraduate advisees: 150

Total number of graduate advisees: 4

Number of graduate students graduated: M.S.: Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.: 8

Courses Taught

ASC 340 Poultry Production
ASC 685 Mineral Metabolism
ASC 686 Advanced Nonruminant Nutrition
ASC 687 Vitamin Metabolism
ASC 380 Feeds and Feeding through Independent Studies Program
ASC 380 Feeds and Feeding internet version through Distance Learning Program
GEN 302 College of Agriculture France Study Tour

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 12	Invited Presentations:
Abstracts: 53	Fact Sheets:
Book Contributions: 2	Posters: 15
Conference Proceedings:	Popular Magazines:
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)

External – Gift (non-competitive grant)

As PI: \$106,500

As Co-PI: \$700,000

Subtotal: \$806,500

Total funding received: \$806,500

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Research: Established a model broiler breeder project used to investigate the effects of selenium, organic trace minerals and antioxidants in the diet of breeder hens on their production and reproduction variables, growth performance and meat quality of progeny, and gene expression in both breeders and progeny. A project was also developed using in ovo injection of selenium into the yolk of early developing embryos to examine toxicity and metabolism of Se on the embryo, as well as antioxidant status and immune status of hatched chicks. In trace mineral nutrition studies with laying hens and broiler chicks, it was shown that organic trace minerals (vs. salts) can be used to decrease dietary inclusion levels, improve tissue mineral status, and decrease mineral excretion, resulting in improved nutritional status of birds and decreased potential for environmental pollution from manure. Studies with laying hens demonstrated that relatively high dietary levels of distillers grains can be used to replace corn and soybean meal when enzyme complexes are also included in the diets.

Teaching: ASC 340 Poultry production was re-organized and has become a very popular course for students in animal sciences and other majors (~38 students per class). Enrollment in ASC 380 Feeds and Feeding online via Distance Learning has also increased and has been taken by students from various majors at UK and by many others across the country. My activities as an undergraduate advisor has greatly increased, having an average of 85 advisees each year.

Goals for Next Five Years

Teaching: I will be officially retired as of Jan. 3, 2012. I will continue to teach and advise in a post-retirement appointment. My goal will be to continue to improve all of my courses, making them more relevant to the needs of today's students. I will continue participation in the National FFA Poultry Career Development Event committee.

Research: I will focus on getting results from our ongoing research projects published and on transferring my responsibilities in our research program to others in our research team during my post retirement appointment.

Extension: I will continue participation as co-chair of the organizing committee of Multi-State Poultry Feeding and Nutrition Conference.

FACULTY RESUME (2005-2011)

Name: Richard D. Coffey

Academic Rank: Extension Professor

Year of First UK Appointment: 1994

Specialization: Swine

Average % DOE

Research: 0%

Extension: 100%

Teaching: 0%

Academic Background

Degree	Year	Institution	Area
1. B.S.	1986	Oklahoma State University	Animal Science – Production Option
2. M.S.	1990	Oklahoma State University	Animal Science – Swine Nutrition
3. Ph.D.	1994	University of Kentucky	Animal Science – Swine Nutrition

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. State Trainer/Coordinator for Adult and Youth PQA Plus Programs (2006-Present), National Pork Board.
2. Ag Faculty Council (2005-2006), UK College of Agriculture.
3. Secretary (2006). Kentucky Joint Council of Extension Professionals (JCEP).

Awards

1. 2011 Extension Award, Southern Section American Society of Animal Science.
2. 2011 Honorary State FFA Degree, National FFA Organization.
3. 2008 FFA Honorary Chapter Degree, Christian County FFA Chapter.

Committees

1. Cargill Pork, LLC Animal Care and Use Committee (2010-2011).
2. University of Kentucky Research & Education Center Advisory Committee (2005-2009).
3. KY Ag Water Quality Act Livestock Committee (1997-Present).
4. Kentucky Pork Producers Association Executive Board (1994-Present).
5. Animal and Food Science Web Site Review/Development Committee (2009-Present).

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 0

Number of graduate students graduated: 0

M.S.: 0

Ph.D.: 0

Number of graduate committees (excluding your students) M.S.: 1

Ph.D.: 1

Courses Taught

Guest lectures and (or) labs for the following courses:

ASC 408G Swine Science (2005, 2006, 2007, 2008, 2009, 2010, 2011).

ASC 382 Livestock Production Principles (2006, 2007, 2008, 2009, 2010).

ASC 382 Principles of Livestock Nutrition (2005).

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 0	Invited Presentations: 25
Abstracts: 0	Fact Sheets: 22
Book Contributions: 2	Posters: 0
Conference Proceedings: 1	Popular Magazines: 2
Numbered Extension Publications: 1	Patents/Genbank Register: 0
Reports of Progress: 4	Other (e.g. websites): 31

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:	\$21,900.00
As Co-PI:	0
Subtotal:	\$21,900.00

External – Competitive

As PI:	\$40,847.50
As Co-PI:	\$95,000.00
Subtotal:	\$135,847.50

External – Gift

As PI:	\$130,482.81
As Co-PI:	0
Subtotal:	\$130,482.81

Total funding received: \$288,230.31

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Since 2004, major accomplishment include : (1) co-developer of Extension Disaster Education Network web-based Animal Agrosecurity and Emergency Management Course, (2) State Trainer for PQA Plus Program with 12 County Agents trained and farm site assessments conducted for 37 KY producers and 16 TN producers, (3) provided information and clientele support through 1861 phone consultations, 1572 printed responses [letter, fax, E-mail], 871 office or face-to-face consultations, and 284 farm visitations, (4) development and implementation of KY 4-H Livestock Volunteer Certification Workshop with 14 workshops conducted and 841 volunteers trained, (5) development of Livestock Discovery CD with over 5,500 CDs distributed in 29 states, and (6) serve as Youth Programs Coordinator providing oversight and leadership for all youth livestock programs and activities.

Goals for Next Five Years

Teaching: Continue providing guest lectures/labs on appropriate topics.

Research: Continue working on alternative manure management systems that can be economically adopted by pork producers.

Extension: Continue meeting needs of swine industry clientele so that they can continue adopting the technologies and management strategies that are necessary to remain sustainable and economically viable.

FACULTY RESUME (2005-2011)

Name: Robert J. Coleman

Academic Rank: Associate Professor

Year of First UK Appointment: 1998 Specialization: Nutrition

Average % DOE Research: Extension: 55 Teaching: 45

Academic Background

Degree	Institution
1. Ph. D.	University of Alberta 1998
2. MS	University of Manitoba 1978
3. BS	University of Manitoba 1975

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Board of Directors for Equine Science Society
2. Director of Undergraduate Studies Equine Science and Management
3. Board of Directors Kentucky Quarter Horse Association (currently serve as Treasurer)

Awards

1. 2005 Distinguished Service Award Equine Science Society
2. 2007 Distinguished Service Award Eastern National 4-H Horse Round Up
3. 2007 KAESP Best Extension Program "Horse College"
4. 2008 Gama Sigma Delta "Master Teacher Award"

Committees

1. Research Committee American Quarter Horse Foundation
2. Equine Program Committee ASAS
3. Sponsorship Committee Equine Science Society (chair since 2003)
4. Editorial Board for the Professional Animal Scientist
5. Program Committee for the Horse Breeders Conference Alberta Canada

Teaching – Advising

Total number of undergraduate advisees: 92

Total number of graduate advisees: 2

Number of graduate students graduated: M.S.: Ph.D.:

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.:

Courses Taught

ASC 320, ASC 410G, EQM 101 and EQM 490

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:	Invited Presentations: 8
Abstracts:1	Fact Sheets:25
Book Contributions:1	Posters:
Conference Proceedings: 12	Popular Magazines: 42
Numbered Extension Publications: 11	Patents/Genbank Register:
Reports of Progress:2	Other (e.g. websites):

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI: \$68,000
As Co-PI: Extension portion of the NFRI Grant \$55,000
Subtotal: \$123,000

External – Gift

As PI: \$30,500.00
As Co-PI: \$100000.00
Subtotal: \$130,500.00

Total funding received: \$253,500

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Development of the Equine Science and Management program has been a major undertaking. Since the first students started in 2007 the program has grown to 217 current students. Development of Horse College into a major extension activity has taken many years to become a significant educational opportunity for horse owners. This program has been not only an opportunity to meet horse owners from across the state but to encourage agents to work more closely with the horse industry. We have developed a number of horse friendly agents who are willing to work with the industry.

I do not have a defined research appointment but have had to opportunity to develop 2 projects which are strong additions to the adult extension program. One in forage and grazing which the student is currently writing her thesis and the second working with an industry partner to train future leaders of the industry. I currently supervise the Larry Lawrence Fellowship student.

Goals for Next Five Years

Teaching: develop a strong Equine Science and Management curriculum that attracts the best and brightest students.

Research: Continue to look for research opportunities that will support my extension program.

Extension: Continue with Horse College but increase its availability to horse owners across the state thought the use of new technology but keeping in mind the role of a traditional Extension program.

FACULTY RESUME (2005-2011)

Name: Gary L. Cromwell

Academic Rank: Professor

Year of First UK Appointment: 1967

Specialization: Swine Nutrition

Average % DOE

Research: 95%

Extension:

Teaching: 5%

Academic Background

Degree	Institution
1. BS	Kansas State University
2. MS	Purdue University
3. PhD	Purdue University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Chair of FASS Committee on Food Safety, Animal Health, and Animal Drugs
2. Chair of National Research Support Project Oversight Committee – National Animal Nutrition Program
3. President of Kentucky Chapter, Gamma Sigma Delta

Awards

1. FASS – New Frontiers in Animal Nutrition Award - 2007
2. ASAS Foundation – Gary L. Cromwell Appreciation Club - 2011
3. Gamma Sigma Delta – G. E. Mitchell Outstanding Faculty Award for Service to Graduate Students – 2005
4. Outstanding Service Award – Kentucky Pork Producers Association

Committees

1. Chair of Animal and Food Sciences Awards and Recognition Committee
2. Chair of Search Committee – Feed Coordinator, Division of Regulatory Services
3. Member of NCCC-42 Committee on Swine Nutrition
4. Member of planning committee – Midwest Swine Nutrition Conference

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 11 (advisory committee)

Number of graduate students graduated: M.S.: 7 Ph.D.: 4

Number of graduate committees (excluding your students) M.S.: 7 Ph.D.: 6

Courses Taught

Swine Production every spring semester

Advanced Nonruminant Nutrition in fall semester of every third year

Mineral Nutrition 3 or 4 lectures every fall semester (Ca, P, Cu)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 33	Invited Presentations: 1
Abstracts: 50	Fact Sheets:
Book Contributions: 6	Posters:
Conference Proceedings: 11	Popular Magazines: 2
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI: \$54,410
Subtotal: \$54,410

External – Competitive

As PI: \$316,277
As Co-PI: \$20,000
Subtotal: \$336,277

External – Gift

As PI: \$123,250
As Co-PI: \$641,890
Subtotal: \$765,140

Total funding received: \$1,355,827

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Teaching: Enrollment in Swine Science has increased from 0 in 2004 up to 20-30 students per year the past five years.

Research: Have been active in conducting and reporting basic and applied research studies in swine nutrition and training graduate students. Published nearly 5 refereed journal papers per year and over 7 abstracts per year from 2004 to 2011.

Goals for Next Five Years (will retire on Jan 3, 2012 and continue on a post-retirement)

Teaching: None

Research: Plan to publish previous unpublished research and assist Dr. Lindemann in his research program.

Extension: None

FACULTY RESUME (2005-2011)

Name: Donald G. Ely

Academic Rank: Professor

Year of First UK Appointment: 1968

Specialization: Ruminant Nutrition

Average % DOE Research: 59%

Extension: Teaching: 41%

Academic Background

Degree	Institution
1. PhD	University of Kentucky
2. MS	Oklahoma State University
3. BS	Oklahoma State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

Awards

1. Gamma Sigma Delta Outstanding Graduate Student Advisor, 2010

Committees

1. Distinguished Service Award; Southern Section ASAS (Member 2007-08; Chair 2008-09)
2. Display/Trade Show Committee, ASAS (Member 2007, 2008)
3. Distinguished Teacher Award, ASAS (Member, 2006)

Teaching – Advising

Total number of undergraduate advisees: 12

Total number of graduate advisees: 4

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.: 4 Ph.D.: 1

Courses Taught

ASC 102: Application of Animal Sciences (3 hr, Spring)

ASC 404: Sheep Science (4 hr, Fall)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 2

Invited Presentations: 11

Abstracts: 15

Fact Sheets:

Book Contributions:

Posters:

Conference Proceedings: 1

Popular Magazines: 8

Numbered Extension Publications:

Patents/Genbank Register:

Reports of Progress:

Other (e.g. websites):

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$113,356 - Annual

As Co-PI: \$ 64,782 - Annual

Subtotal: \$178,138

External – Competitive

As PI:
As Co-PI:
Subtotal:

External – Gift

As PI: \$36,000
As Co-PI:
Subtotal:

Total funding received: \$214,138

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Teaching: The goal of ASC 102 (Applications of Animal Sciences) is to introduce students to the animal industry and the products produced. Fifty students enroll in lecture every spring, but are divided into two, 25-student sections for lab. PowerPoint slides are interwoven into interactive instruction during “lectures”. Students get “hands-on” experience in labs by weighing, condition scoring, aging, and evaluating phenotypes of animals. ASC 404 (Sheep Science) applies the principles of genetics, animal breeding, nutrition, reproduction and fiber production learned in prerequisite courses. Typically, 15 to 30 students actively participate in interactive instruction in the classroom and learn sheep management techniques (skills) through the process of describing the skill to be learned, observing its demonstration, followed by student application of the skill under professional supervision.

Research: This program uses sheep at the C. Oran Little Research Center and beef cattle at the Eden Shale Farm. Accomplishments include development of a purebred White Dorper sheep flock in cooperation with Dr. Debra Aaron and discovering that copper sulfate can be used to control stomach worm infestations in sheep. Other research shows commercial mineral, provided ad libitum to sheep and beef cattle, can be diluted with 50% white salt without sacrificing performance, grazing sheep and beef together on cool season grasses in spring results in more animal production per acre than grazing beef cattle alone, and strategic supplementation with a toxin adsorbent can increase production of beef cows and calves grazing endophyte-infected tall fescue.

Goals for Next Five Years

Teaching: (1) Continue to develop instructional techniques and materials that will challenge the intellectual capabilities of undergraduates. (2) Expand the hands-on aspect of undergraduate instruction in animal sciences.

Research: (1) Increase the efficiency of production of White Dorper, Polypay, and Hampshire sheep. (2) Study management strategies that will allow each breed to express itself to its genetic potential. (3) Demonstrate to producers how this is accomplished. (4) Discover a management strategy that will eliminate fescue toxicity in ruminants.

Extension:

FACULTY RESUME (2005-2011)

Name: David L. Harmon

Academic Rank: Professor

Year of First UK Appointment: 1992

Specialization: Ruminant Nutrition

Average % DOE

Research: 64

Admin: 20

Teaching: 16

Academic Background

	<u>Degree</u>	<u>Year</u>	<u>Institution</u>
1.	Ph.D.	1983	University of Nebraska
2.	M.S.	1980	University of Nebraska
3.	B.S.	1978	The Ohio State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Director of Graduate Studies (2002-2011)
2. Beef Research Unit Coordinator
3. Honorary Scientist, Rural Development Association, Republic of South Korea, 2005-2007

Awards

1. College of Agriculture George E. Mitchell, Jr. Award for Service to Graduate Students- 2010
2. College of Agriculture Thomas Poe Cooper Award for Research- 2006
3. American Society of Animal Science Jim Corbin Award in Companion Animal Biology- 2005

Committees

1. College of Agriculture Promotion & Tenure Academic Advisory Committee, Chair 2010
2. College of Agriculture Promotion & Tenure Academic Advisory Committee, member 2009
3. **AFRI** - Improving Sustainability by Improving Feed Efficiency of Animals and Animal Health and Production: Animal Bioinformatics Review Panels October 2010, Washington, DC
4. IACUC Committee member for Alltech Biotechnology, Inc. Nicholasville, KY.
5. Graduate Activities Committee, Chair (2005-2011)

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees (current): 5 (4 Ph.D. & 1 Post-Doc)

Number of graduate students graduated: M.S.: 7 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.: 1

Courses Taught

ASC 680 Laboratory Methods in the Nutritional Sciences

ASC 684 Advanced Ruminant Nutrition

ASC 388 Companion Animal Nutrition

Teaching, Research or Extension Publications 2005-2011 (numbers only)

AES Refereed Journal Articles: 40	Invited Presentations:14
Abstracts:40	Fact Sheets:0
Book Contributions:2	Posters:0
Conference Proceedings:3	Popular Magazines:0
Numbered Extension Publications:0	Patents/Genbank Register:0
Reports of Progress:16	Other (e.g. websites):0

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$394,181
As Co-PI: \$691,203
Subtotal:\$1,085,384

External – Competitive

As PI: \$984,475
As Co-PI: 0
Subtotal: \$984,475

External – Gift

As PI: \$669,279
As Co-PI: \$15,000
Subtotal: \$684,279

Total funding received: \$2,754,138

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Over the past four years I have been able to develop a new course, ASC 388, Companion Animal Nutrition, which is currently in the approval phase. It has been taught three times as Gen 300. Hopefully, this will be approved in the coming semester and will be a regular part of our curriculum. This along with ASC 680, Laboratory Methods in the Nutritional Sciences, will comprise my teaching responsibilities.

My research program has changed slightly in that I am no longer conducting companion animal research due to the absence of funding to support it. My final companion animal student is currently completing her degree which will be the 14th degree I have supervised involving companion animal research.

With the ending of my companion animal research I return my sole focus to my ruminant research program. My current support in this area is good with four students working on projects; however, additional funding will be needed to sustain this productivity. To this end I have submitted an AFRI proposal which grew out of the research of my recent Ph.D. student and focuses on gastrointestinal physiology.

Goals for Next Five Years**Teaching:**

Continue to develop and grow my new ASC 388 course into a solid component of our curriculum.

Research:

Compete current students and continue to find means to support a viable research program.

FACULTY RESUME (2005-2011)

Name: Robert J. Harmon

Academic Rank: Professor & Chair

Year of First UK Appointment: 1979

Specialization: Mastitis, lactation physiology

Average % DOE

Administrative: Research: 44%, Extension: 16%, Teaching: 40%

Academic Background

Degrees

Institution

1. BS

Ohio State University

Dairy Science

2. MS

Ohio State University

Dairy Science

3. PhD

University of Guelph

Veterinary Microbiol. & Immunology

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Secretary and Chair of Southern (SAC-2) Animal Science Chairs Group
2. Secretary, National Mastitis Research Foundation
3. KY Farm Bureau Sheep & Goat and Beef Cattle Advisory Committees

Awards

1. 2011 UK Work-Life Supervisor of the Year Award Finalist
- 2.
- 3.

Committees

1. North Farm Users Group
2. Little Research Center Users Group
3. USDA-ARS Program Review and Advisory Group
4. Chair, Assistant Director Ag & Natural Resources Search Committee
- 5.

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees:

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.: 1

Ph.D.: 1

Courses Taught

- ASC 564 Milk Secretion; each Spring Semester

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:	Invited Presentations:
Abstracts:1	Fact Sheets:
Book Contributions:	Posters:
Conference Proceedings:	Popular Magazines:
Numbered Extension Publications:1	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$149,650

As Co-PI: _____

Subtotal: \$149,650

Total funding received: \$149,650

Summary of Teaching, Extension or Research Accomplishments Since 2004 or Since Appointment:

As chair, my responsibilities include the oversight and management of research, instruction, and Extension programs as well as the fiscal responsibility for the department. In 2005 a new name, Animal and Food Sciences, was approved to better reflect the makeup of the department. In spite of budgetary challenges since 2004, the department has hired eight faculty and one lecturer and has managed to balance budgets each year. I have helped facilitate the establishment of a Food Systems Innovation Center and played a significant role in the initiation of a new Equine Science and Management degree program in the College of Agriculture. I have taken a leadership role in working with Eastern Kentucky University and the dairy industry in evaluating options for replacement of the UK Dairy Unit, including a partnership with EKU. I have also led an initiative to bring the Dairy Unit into compliance with nutrient management and water quality regulations, while downsizing the facility. The Animal Science curriculum was revised in 2005 and is now preparing a review of the curriculum once again. Assessment of learning outcomes has been initiated for both undergraduate and graduate programs.

Goals for Next Five Years

Teaching: Continue to teach ASC 564 and provide students with a challenging yet enjoyable experience. Initiate a review of the ASC undergraduate curriculum and utilize the assessment effort to enhance our curriculum. Transition to a new advising model with the hiring of an Academic Program Coordinator. Encourage faculty to be the best instructors they can be.

Research: Continue to develop competitive programs that are productive and contribute to the Land Grant mission. Work with industry groups to resolve the future location of our Dairy Unit.

Extension: Continue to develop and execute Extension programs that have impact on the clientele in the state and strive to be one of the strongest Animal Science Extension programs in the country.

FACULTY RESUME (2005-2011)

Name: George Heersche, Jr.

Academic Rank: Extension Professor

Year of First UK Appointment: 1978

Specialization: Extension Dairy Specialist

Average % DOE

Research:

Extension: 100%

Teaching:

Academic Background

Degrees

1. Bachelor of Science, Agriculture
2. Master of Science, Dairy Science
3. Doctor of Philosophy, Physiology

Institution

- Kansas State University
Kansas State University
Kansas State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Chairman of the National 4-H Dairy Cattle Judging Contest Management Committee
2. Co-superintendent and committee member for the Youth, Post-Secondary and Collegiate Dairy Cattle Judging Contests at the North American International Livestock Exposition
- 3.

Awards

1. Hoard's Dairyman Youth Development Award from the American Dairy Science Association
2. Dairy Promoter of the Year from the Kentucky American Dairy Association
3. Friend of Kentucky 4-H Award from the Kentucky 4-H Leaders Council

Committees

1. National Dairy Shrine Board of Directors
- 2.
- 3.
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees:

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.: 3 Ph.D.: 1

Courses Taught

1. Serve as mentor to the graduate student who teaches ASC 321 and ASC 323, Dairy Cattle Evaluation. Sometime this involves team teaching.
2. Team taught ASC 462G, Artificial Insemination of Farm Animals
3. Team taught ASC 420G, Dairy Cattle Science
4. Guest lecturer in ASC 120, Introduction to Animal Science

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:	Invited Presentations: 20
Abstracts:	Fact Sheets:
Book Contributions:	Posters:
Conference Proceedings: 3	Popular Magazines:
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites): 20

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI: _____
Subtotal:

External – Competitive

As PI:
As Co-PI: _____
Subtotal:

External – Gift

As PI: \$20,000
As Co-PI: _____
Subtotal: \$20,000

Total funding received: \$20,000

Summary of Teaching, Extension or Research Accomplishments Since 2004 or Since Appointment:

Conducted several annual statewide and national 4-H dairy educational opportunities. Served as co-superintendent of the Youth, Post-Secondary and Collegiate Dairy Cattle Judging Contests at the North American International Livestock Exposition. Chaired the National 4-H Dairy Cattle Judging Contest Management Committee. Worked closely with the allied industries to increase the successful utilization of Artificial Insemination in dairy herds. Invited speaker at the Kentucky Dairy Partners Meeting and the Kentucky Dairy Development Council's Winter Coverall Meetings. Helped train two National Champion FFA Dairy Cattle Career Development Event teams. Continued to serve as teacher, coach, mentor and counselor to youth involved in the Kentucky 4-H Dairy educational programs.

Goals for Next Five Years

Teaching: Guest lecture when invited

Research: Participate when invited

Extension: Continue to provide quality educational programs for the Kentucky dairy industry and Kentucky 4-H and FFA members

FACULTY RESUME (2005-2011)

Name: Bernhard Hennig

Academic Rank: Professor

Year of First UK Appointment: 1984

Specialization: Nutrition and Toxicology

Average % DOE

Research: 90

Extension: 0

Teaching: 10

Academic Background

Degree	Institution
1. BS (Biochemistry)	San Francisco State University
2. MS (Nutrition)	Colorado State University
3. PhD (Nutrition)	Iowa State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Editor-in-Chief, Journal of Nutritional Biochemistry (2001-present)
2. Participant of NIEHS/NIH 5-year strategic planning workshop (2011)
3. External Advisory Boards (University of Louisville, University of Iowa, Florida State University)

Awards

1. Fulbright Award (2009)
2. Helen LeBaron Hilton Award for Outstanding Leadership and Distinguished Achievement, Iowa State University (2009)
3. Superfund Research Program Distinguished Lecture (NIEHS/NIH) (2011)

Committees

1. Chairperson, NIEHS/NIH Special Emphasis Panel (grant review) (2006)
2. Member, US Fulbright Scholar Peer Review Committee (2009-2011)
3. Member, Planning Committee, Awards Committee, Membership Committee, American College of Nutrition (until 2011)
4. Member, UK Toxicology Training Grant Steering Committee (2009-present)
5. Member, UK Joint Committee on Honorary Degrees (until 2009)

Teaching – Advising

Total number of undergraduate advisees: 12 – undergrad research (ARRA, BIO)

Total number of graduate advisees: currently 4 doctoral students

Number of graduate students graduated (2005-2011): 6 M.S.: 0 Ph.D.: 6

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.: 7

Courses Taught:

University of Kentucky: NFS 311 (Nutritional Biochemistry) – every year

Universidad de Antioquia: Bioquímica Nutricional (2009, 2011)

Teaching, Research or Extension Publications – 2005 to 2011 (numbers only)

AES Refereed Journal Articles: 63	Invited Presentations: 30
Abstracts: 110	Fact Sheets: 0
Book Contributions: 5	Posters: 90
Conference Proceedings: 3	Popular Magazines: 0
Numbered Extension Publications: 0	Patents/Genbank Register: 0
Reports of Progress: yearly	Other (e.g. websites): 0

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$46,000

As Co-PI: 0

Subtotal: \$46,000

External – Competitive

As PI: \$17,115,000

As Co-PI: \$3,778,732

Subtotal: over 20 million

External – Gift

As PI:

As Co-PI:

Subtotal: 0

Total funding received: over 20 million dollars

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

I teach NFS 311 (Nutritional Biochemistry) every year and advise mostly graduate students and postdocs.

I have been the Director of the UK Superfund Research Program (NIH-funded) since 2003, and we received two multi-million dollar competing renewals of our program grant. These research activities also include invited presentations at the national and international level and 72 refereed publications since 2004.

I have been the Editor-in-Chief of the *Journal of Nutritional Biochemistry (JNB)* since 2001; the current impact factor of JNB is 4.538.

Goals for Next Five Years

Teaching: continue to teach NFS 311 at UK and short courses at the Universidad de Antioquia.

Research: continue research and editorial activities.

Extension: will contribute if invited.

FACULTY RESUME (2005-2011)

Name: Clair L. Hicks

Academic Rank: Professor

Year of First UK Appointment: 1974
chemistry

Specialization: Food Science/Dairy

Average % DOE Research: 49.8 Extension: Teaching: 50.2

Academic Background

Degree	Institution
1. Ph.D.	University of Wisconsin-Madison
2. MS	Utah State University
3. BS	Utah State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Director American Dairy Science Association (ADSA)
2. Scientific Communicator, Institute of Food Technologist (IFT)
3. Scientific board, Shelf life Advise

Awards

1. Honorary Faculty member, Brawijaya University, Indonesia
2. Honorary Faculty member, University of Riau, Indonesia
- 3.

Committees

1. Chairman of Undergraduate Teaching committee (ADSA)
2. Co-Chair, ADSA, Enzyme nomenclature committee (ADSA)
3. Co-Chair, Bluegrass IFT suppliers night
4. Scientific communication committee ADSA
5. Committee member, various education, scholarship committees for ADSA and IFT

Teaching – Advising

Total number of undergraduate advisees: 31
Total number of graduate advisees: 3
Number of graduate students graduated: M.S.: 3 Ph.D.:
Number of graduate committees (excluding your students) M.S.: 3 Ph.D.:

Courses Taught

FSC 306, Food processing
FSC 536, Advanced Food Technology, Capstone course
FSC 636, Food Packaging

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 7	Invited Presentations: 16
Abstracts: 17	Fact Sheets: 0
Book Contributions: 0	Posters: 17
Conference Proceedings: 2	Popular Magazines: 2
Numbered Extension Publications: 0	Patents/Genbank Register: 1
Reports of Progress: 6	Other (e.g. websites): 2

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$
As Co-PI:
Subtotal: \$

External – Competitive

As PI: \$80,000
As Co-PI:
Subtotal: \$80,000

External – Gift

As PI: 10,000 estimate
As Co-PI:
Subtotal:

Total funding received: \$90,000

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Teaching: I teach the Advanced Food Technology course that has been recognized by IFT on to different occasion as a model course for teaching an R&D course.

Research: I have two patents pending for novel technologies including the virtual identification of microorganisms and cellular functions.

Patent receive was for a creating a novel molecule use to detect microorganism using rapid assay techniques

Goals for Next Five Years

Teaching: retire

Research: retire

Extension:

FACULTY RESUME (2008-2011)

Name: Elizabeth LaBonty

Academic Rank: Lecturer

Year of First UK Appointment: 2008

Specialization: Equine Reproduction

Average % DOE

Research:

Extension:

Teaching: 100%

Academic Background

Degree	Institution
1. Master of Science	University of California at Davis
2. Bachelor of Science	University of Nebraska

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.
- 2.
- 3.

Awards

1. Outstanding Faculty, LCCC - 2006
2. Academy of Teaching and Learning Scholars Program, UK 2009 - present
3. Phi Sigma Honor Society Member, Gamma Delta Chapter, UC Davis, 2005 - present

Committees

1. Equine Initiative Executive Committee, UK - 2011
2. Equine Studies Representative, GEN 100/200 College Committee, UK - 2010
3. Equine Internship Reception Committee Chair, UK - 2011
4. Kentucky Equine Youth Festival Planning Committee, UK - 2011
5. Equine Career Fair Committee Chair, UK – 2008, 2009, 2010, 2011

Teaching – Advising

Total number of undergraduate advisees: 34

Total number of graduate advisees:

Number of graduate students graduated: 2

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.:

Ph.D.:

Courses Taught

1. EQM 101 Intro to the Equine Industry (F-2009, F-2010, F-2011)
2. GEN 200 Contemporary Issues in Agriculture (F-2009, S-2010, F-2010, S-2011, F-2011)
3. EQM 399 Equine Internship (2009 – present, every semester)
4. GEN 109 Introduction to Equine Careers (S-2010, S-2011)
5. GEN 109 Equine Career Preparation & Employment Skills (F-2010, F-2011)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 1	Invited Presentations: 3
Abstracts: 2	Fact Sheets:
Book Contributions:	Posters: 1
Conference Proceedings: 2	Popular Magazines:
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Brief Summary of Teaching, Extension or Research Accomplishments Since 2008:

Since starting at UK in 2008, I have placed, supervised, and evaluated over 90 equine related internships. Students have completed internships from New York to Texas to Wyoming, and all across Kentucky. Internships have varied from working in equine hospitals and alongside equine practitioners, to administrative work at Keeneland, Fasig-Tipton, and the Kentucky Horse Council. Some students have completed research internships and others have worked with trainers and farm managers. I have also introduced two new classes to the curriculum, Introduction to Equine Careers and Equine Career Prep, and worked to add new student and internship outreach events. Such events include hosting an annual equine specific career fair, an ice cream social each fall to help new students get involved in clubs and teams, and in internship reception to celebrate and thank people who have hosted interns.

Goals for Next Five Years

Teaching: I have two main teaching goals for the next five years. One is that I would like to have both Introduction to Equine Careers and Equine Career Prep approved and recognized with their own EQM course listing, and the other is that I would like to teach two sections of EQM 101 rather than one to decrease the faculty to student ratio and also make scheduling easier for incoming freshman.

Research: For research, I would like to study the effect of various teaching methods on retention, specifically anatomy terminology, and also explore integrating the concept of service learning in equine and animal science courses. I hope to publish or present data that I have collected and hope to collect on these topics in the next five years.

Extension: I would like to improve the welcome event (either ice cream social or barbeque) for our freshman as well as the Internship Reception. I would also like to move the Equine Career Fair to a larger location and increase the number of attending booths and schools.

FACULTY RESUME (2005-2011)

Name: Laurie Lawrence

Academic Rank: Professor

Year of First UK Appointment: 1992 Specialization: Equine Nutrition

Average % DOE Research: 80 Extension: Teaching: 20

Academic Background

Degree	Institution
1. BS	Cornell University
2. MS	Colorado State University
3. Ph.D	Colorado State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Board of Directors, National Association of Equine Affiliated Academics
2. Board of Directors, Kentucky Equine Management Internship

Awards

1. Fellow, American Society of Animal Science 2011
2. Equine Science Award, 2008, American Society of Animal Science & Equine Science Soc
3. KFGC Public Service Award, 2011, Kentucky Forage and Grassland Council

Committees

1. Chair, National Research Committee on Horse Nutrition 2004-2006
2. Executive Committee, Equine Initiative, University of Kentucky, 2008-2011
3. Promotion and Tenure, Department of Animal and Food Sciences, UK 2009-2011
4. Chair, Awards Committee for the Equine Science Society,
5. Chair, Equine Species Committee, ASAS, 2005-06

Teaching – Advising

Total number of undergraduate advisees: 3

Total number of graduate advisees: 8

Number of graduate students graduated: M.S.: 5 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.: 3

Courses Taught

2005-2008

Equine Anatomy and Conformation (ASC 310)

Advanced Horse Evaluation (ASC 311)

Horse Industry Study (Gen 300)

Equine Nutrition (ASC 688)

2009-2011

Equine Nutrition (ASC 688)

Applied Equine Nutrition and Feeding (Gen 300)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 13	Invited Presentations: 28
Abstracts: 25	Fact Sheets: 3
Book Contributions: 11	Posters: 8
Conference Proceedings: 12	Popular Magazines: 5

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$188,590

As Co-PI: Subtotal: \$188,590

External – Competitive

As PI: \$384,850

As Co-PI: \$180,000 Subtotal: \$564,850

External – Gift

As PI: \$10,000 in unrestricted funds and \$100,000 as in-kind contributions

As Co-PI: Subtotal: \$ 110,000

Total funding received: \$763,440 (not including in-kind contributions)

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

I chaired the NRC committee to revise the “Nutrient Requirements of Horses”. This publication is used world-wide by researchers, equine nutritionists, horse owners, veterinarians and feed companies. Six graduate students completed 7 degrees (6 MS, 1 PhD). Jennifer Ringler-Earing was named the Outstanding MS student in the College and also received awards for her MS and Ph.D. research presentations at the ESS meetings.2009. Katie Watson received an award for her research at the joint meeting of the Society for Range Science and the American Forage and Grassland Society. I have enjoyed productive collaborative relationships with faculty in Biosystems and Ag Engineering and Plant and Soil Science, as well as with scientists in USDA-ARS. Accomplishments include a method for estimating the digestibility of horse feeds using an in vitro batch system; discovering that the microbial population of the foal’s GI tract is established within the first week of life; that by 6 months of age the digestive capacity of the growing horse is similar to the adult horse. We have identified grasses that are preferred by horses and have found that when given access to multiple species of forage, horses do not discriminate based on carbohydrate content. We have tested and validated several of the assumptions published in the NRC 2007; including the equation for predicting growth and the estimates of weight gain in pregnant mares. Research results have been presented at scientific meetings and to stakeholder groups. Teaching accomplishments include advising an active Horse Racing Club, teaching equine nutrition at the graduate and undergraduate level and developing a new collaborative program with a university in France to introduce their students to the Kentucky horse industry.

Goals for Next Five Years

Teaching: Teach “Applied Equine Nutrition and Feeding” as either an ASC or and EQM course (currently offered under Gen 300; a new course proposal was submitted in summer 2011)

Research: Develop our research in the growing horse and broodmare to better understand the nutrient requirements and effects of diet on gastrointestinal physiology and skeletal development.

Extension: Continue to conduct research that has immediate application in the horse industry and present results at stake holder meetings.

FACULTY RESUME (2005-2011)

Name: Jeffrey W. Lehmkuhler **Academic Rank:** Assistant Professor

Year of First UK Appointment: 2008 **Specialization:** Beef Cattle Nutrition

Average % DOE **Research:** 0 **Extension:** 100 **Teaching:** 0

Academic Background

Degree	Institution
1. Bachelor of Science	Purdue University
2. Master of Science	University of Missouri
3. Doctorate	University of Missouri

Committees, Awards, Offices

Elected/Appointed Offices

1. Southern Section Extension Committee, Secretary
2. SERA 41 Regional Project, Secretary

Committees

1. Mid-South Beef Stocker Association Board Member ('08-present)
2. University of Kentucky Beef IRM Committee ('08-present)
3. University of Kentucky Animal & Food Sciences Department Website Committee ('10-'11)
4. University of Kentucky Animal & Food Sciences Department Display Committee ('09-'10)

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 0

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.: 2

Courses Taught

ASC 406 Beef Production; develop and deliver approximately 1/3 of lectures.

ASC 382 Livestock Production Principles, provide a single guest lecture

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 7	Invited Presentations: 8
Abstracts: 10	Fact Sheets: 4
Book Contributions: 0	Posters: 0
Conference Proceedings: 6	Popular Magazines: 1
Numbered Extension Publications: 5	
Patents/Genbank Register: 0	
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:

As Co-PI:

Subtotal: \$0

External – Competitive

As PI: \$38,450 for Applied Master Cattleman ('10); \$19,000 for Master Stocker ('11); \$33,000 for Applied Master Cattleman ('11)

As Co-PI: \$219,394 for Master Cattleman, Master Grazer, Beef One ('11)

Subtotal: \$309,844

External – Gift

As PI: \$17,000 in semen donation in support of on-farm demonstrations

As Co-PI:

Subtotal: \$17,000

Total funding received: \$326,844

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Current focus in Extension relates to nutritional management of feeder cattle in stocker and backgrounding enterprises. Emphasis has also been place on agent educational programs to increase their knowledge base as well as aid them in their career ladder. Development of a new Master Stocker program for clientele has been a major thrust in 2011 for delivery in 2011 and 2012. Co-teach Beef Production with two of my colleagues since 2010 as well as provide an overview of the beef industry for non-majors enrolled in ASC 382. Research involves collaborating with colleagues in the receiving and finishing areas as well as supplementation of grazing cattle. On-farm demonstrations have been a mechanism to demonstrate management practices and increase adoption of management change.

Goals for Next Five Years

Teaching: Continue to improve delivery and engage students in the classroom while challenging them to think critically about topics. Would like to see enrollment increase 25% annually the next 3 years and then 10-15% after this.

Research: Continue to be involved with my peers and pursue on-farm research funding.

Extension: Have Kentucky as the center of the southeast for information on backgrounding and stockering beef cattle in the region. Continue to develop resources in the area of stocker and backgrounding, utilize the web as a mechanism to share these resources and on-going research efforts.

FACULTY RESUME (2005-2011)

Name: Merlin D. Lindemann

Academic Rank: Professor

Year of First UK Appointment: 1994

Specialization: Nutrition

Average % DOE

Research: 87

Extension: -

Teaching: 13

Academic Background

Degree	Institution
1. B.S.	University of Minnesota
2. Ph.D.	University of Minnesota

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Associate Editor, Nonruminant Nutrition section - Journal of Animal Science, 2002-2005
2. Midwest Swine Nutrition Conference committee chair (5-state committee which presents yearly nutrition conference [related to swine] for the feed industry)
3. S-1044 Multi-state sow nutrition project committee – multiple times served in the officer sequence; project has been ongoing for 30+ years. NCERA-89 Multistate swine production mngt project – recently elected secretary

Awards

1. 2008. American Society of Animal Science Animal Management Award recipient
2. 2010. UK College of Agriculture Thomas Poe Cooper Research Award recipient for distinguished achievements in research
3. 2008. Gamma Sigma Delta George E. Mitchell Award recipient for outstanding faculty service to graduate students
4. 2008. Teachers Who Made a Difference award recipient – an annual award through the College of Education to professors by voluntary nomination of undergraduate students

Committees

1. Appointed to the 11th Subcommittee on Swine Nutrition of the Nat'l Academy of Sciences/ Nat'l Research Council to review/revise the Nutrient Requirements of Swine, 2010 – 2012
2. Digestive Physiology of Pigs Internat'l Steering Committee, sole U.S. representative, chair of Local Organizing Committee bringing the meeting to U.S. for 1st time in 2012
3. UK Institutional Animal Care and Use Committee, member 2008 - 2014
4. United States Department of Agriculture - Small Business Innovation Research (SBIR) Animal Production and Protection panel manager, 2007 and 2008
5. UK Academic Area Advisory Committee for the Biological Sciences, member 2008-2010

Teaching – Advising

Total number of undergraduate advisees: 7

Total number of graduate advisees: 9

Number of graduate students graduated: M.S.: 5 Ph.D.: 3

Number of graduate committees (excluding your students) M.S.: - Ph.D.: 3

Outside examiner on 3 PhD (2 in Canada, 1 in Australia); 2 visiting scientists and 2 post docs

Courses Taught

ASC 378 Principles of Animal Nutrition, 1994 – 2011

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 33	Invited Presentations: 19
Abstracts: 58	Fact Sheets:
Book Contributions: 2	Posters:
Conference Proceedings: 19	Popular Magazines: 4

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$13,891
As Co-PI: \$65,910
Subtotal: \$79,801

External – Competitive

As PI: \$20,000
As Co-PI: \$116,277
Subtotal: \$136,277

External – Gift

As PI: \$707,000
As Co-PI: \$165,730
Subtotal: \$872,730

Total funding received: \$1,088,808

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Received both an undergraduate teaching award and a graduate advising/service award. Research has been productive in terms of number of organizations with whom I worked, number of publications, and number of students trained. Quality of research is further evidenced by the number of speaking invitations and interest of individuals for visiting scientist and post doc positions in my program. Twelve of 19 invited speaking presentations have been international including Europe, South America, Canada, and several Asian countries; many of the international invitations involved multiple presentations on multiple topics in multiple venues. Impact statements in the faculty reports submitted in this period demonstrate potential savings or added value from my research program of over \$20 million for domestic swine production alone; considering impact internationally would push that number up by factors of 10-20.

Goals for Next Five Years

Teaching: Transition to graduate classes and away from undergraduate classes.

Research: 1) to continue to foster relationships with faculty members in universities with under-utilized resources both in the US and, hopefully, internationally through cooperative research, 2) to conduct research in areas that impact waste management as well as production efficiencies, and 3) to continue doing meaningful “discovery” research in the university setting and scale it up in production settings.

Extension: My extension activities are informal and involve feed companies, dietary ingredient suppliers, and major swine production integrators. These activities will continue to be strengthened with particular emphasis on joint research in large production settings.

FACULTY RESUME (2005-2011)

Name: James C. Matthews

Academic Rank: Associate Professor

Year of First UK Appointment: 1998

Specialization: Beef Cattle Nutrition

Average % DOE Research: 75.0

Extension:

Teaching: 25.0

Academic Background

Degree	Institution
1. B.S., 1988	Rutgers University
2. M.S., 1991	Virginia Tech
3. Ph.D., 1995	Virginia Tech
4. Postdoctoral Research Fellow, 1997	University of Florida College of Medicine

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. University of Kentucky-Alltech Professor of Applied Nutritional Sciences (2008-present)
2. Adjunct Associate Professor in Animal and Poultry Sciences, Univ. of Guelph (2008-2011)
3. Member, 2009 USDA National Institute of Food and Agriculture Competitive Grants Program, peer review panel for Animal Growth and Nutrient Utilization

Awards

1. 2007 Midwest ASAS Outstanding Young Researcher Award

Committees

1. 2007-2009 ASAS annual (inaugural year, 2007) Cell Biology Symposium Committee
2. 2004-2007 ASAS tri-annual Growth and Development Symposium Committee
3. 2008-2011 University of Kentucky Institutional Biosafety Committee
4. 2005-2008 University of Kentucky Radiation Safety Committee
5. 2005-present Coordinating Committee for College Agricultural Biotechnology Program

Teaching – Advising

Total number of undergraduate advisees: total = 20, current = 0; mentored completion of 4 ABT 395 research projects

Total number of graduate advisees: total = 6, current = 2; (plus 4 postdoctoral scholars)

Number of graduate students graduated: M.S.: 2 Ph.D.: 2

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.: 4

Courses Taught

ASC 683 (Protein Metabolism), 2005, 2007, 2009

ASC 689 (Physiology of Digestion and Absorption), 2006, 2008, 2010

ABT 395 (Independent Study in Agricultural Biotechnology)

Fall and spring, 2005-2010; summer, 2006-2010

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 22	Invited Presentations: 9
Abstracts: 44	Posters: 6
Book Contributions: 3 chapters	Popular Magazines: 1
Conference Proceedings: 4	Reports of Progress: 4
Patents/Genbank Register: 43 GenBank and 2 Gene Expression Omnibus	

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$552,356
As Co-PI: \$401,906
Subtotal: \$954,262

External – Competitive

As PI: \$940,000
As Co-PI: 0
Subtotal: \$945,000

External – Gift

As PI: \$35,000
As Co-PI: 0
Subtotal: \$35,000

Total funding received: \$1,929,262

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

1. Determined that substrate and energy supplies differentially alter steady-state mRNA content across and within classes of nucleic acid, amino acid, and sugar transporters of growing cattle
2. Provided the molecular understanding for why ruminants respond differently to metabolic acidosis than nonruminants, and determined how the rumen epithelial transcriptome is altered in response to ruminal acidosis
3. Identified that synaptic vesicle VGLUT and renal ENT1 functions are sensitive to ergot alkaloids contained in endophyte-infected tall fescue, thus identifying novel mechanisms contributing to the systemic symptoms of fescue toxicosis in cattle
4. Determined that cattle grazing endophyte-infected tall fescue have an increased glucogenic capacity and altered gene/protein expression profiles for mitochondria, oxidative phosphorylation cascades, and amino acid metabolism
5. Demonstrated that supplementation of Se-adequate cattle with organic versus inorganic sources of Se results in altered liver gene expression profiles
6. Demonstrated that supplying a 1:1 mixture of dietary inorganic plus organic sources of Se results in the same enhanced level of Se assimilation as does 100% organic Se

Goals for Next Five Years

Teaching: Maintain levels of graduate instruction and undergraduate research mentoring

Research: Expand current research activities in regulation of gene expression and nutrient metabolism using commercially-relevant models for production animal development, selenium metabolism, and fescue toxicosis

FACULTY RESUME (2005-2011)

Name: Alan Jackson McAllister

Academic Rank: Extension Professor

Year of First UK Appointment: 1990

Specialization: Dairy Cattle Genetics

Average % DOE Research: 5 Extension: 95 Teaching:

Academic Background

Degree	Institution
1. B.S.	University of Kentucky
2. M.S.	Ohio State University
3. Ph.D.	Ohio State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.American Dairy Science Association – Southern Section - Director
- 2.
- 3.

Awards

- 1.
- 2.
- 3.

Committees

1. American Dairy Science Association – J.L. Lush Award Committee, Chair
2. S-1008 Regional Dairy Cattle Breeding Project, Chair; Member S-1040 Regional Dairy Cattle Breeding Project
3. UK Extension Area Committee
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees: 1

Number of graduate students graduated: M.S.: 1 Ph.D.:

Number of graduate committees (excluding your students) M.S.: Ph.D.:

Courses Taught

Guest lectures – ASC 420, ASC 382

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 4	Invited Presentations: 7
Abstracts: 8	Fact Sheets: 35 (unnumbered)
Book Contributions:	Posters:
Conference Proceedings: 4	Popular Magazines: 6
Numbered Extension Publications: 1	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: Hatch Funds – S-1008, S-1040 Regional Dairy Cattle Breeding Project \$7000

As Co-PI:

Subtotal: \$7000

External – Competitive

As PI:

As Co-PI: DAIReXNET - \$205,448

Subtotal: \$205,448

External – Gift

As PI:

As Co-PI:

Subtotal:

Total funding received: \$212,448

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Extension: I have conducted 109 county or area programs or workshops or made presentations in the areas of dairy cattle genetics, DHI dairy records dairy farm business management and farm management. I have published the numbered extension publication, unnumbered fact sheets, refereed journal articles and abstracts noted above as well as 26 issues of newsletters. In addition, I have made 2 international presentations and 4 regional presentations on dairy cattle genetics topics and 1 regional presentation on dairy farm business management.

Goals for Next Five Years

Teaching:

Research: Complete the study and publish the results on the final economic comparison between purebreds and crossbreds from the dairy cattle breeding project conducted at University of Kentucky, Virginia Tech and North Carolina State University since 2002.

Extension: Retirement is scheduled for January 3, 2012.

FACULTY RESUME (2005-2011)

Name: Kyle R. McLeod **Academic Rank:** Associate Professor

Year of First UK Appointment:2001 **Specialization:** Ruminant Nutrition

Average % DOE Research: **90 Extension:** **Teaching:** **10**

Academic Background

Degree	Institution
1. B.S.	Texas Tech University
2. M.S.	Texas Tech University
3. Ph.D.	University of Kentucky

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.
- 2.
- 3.

Awards

- 1.
- 2.
- 3.

Committees

- 1.University of Kentucky Institutional Animal Care and Use Committee (currently a 20% administrative appointment).
- 2.University of Kentucky Subcommittee for the Evaluation of Occupational Health and Safety program (member).
- 3.IACUC committee for Evaluation of Training Program for Personnel Working with Animal Research (Chairperson).
- 4.IACUC committee for Evaluation of Agricultural Animal Health Care Program (member).
- 5.Selction committees for faculty hires in Equine Science and Metabolic Physiologist (member).

Teaching – Advising

Total number of undergraduate advisees: NA

Total number of graduate advisees:5 (3 post-doctorial scholars)

Number of graduate students graduated:4 M.S.: 3 Ph.D.:1

Number of graduate committees (excluding your students) M.S.: 10 Ph.D.:8

Courses Taught

Energy Metabolism (ASC 681), Spring 2005, 2007, 2009, 2011

Mammalian Endocrinology (ASC/PGY 601), Fall 2005, 2006, 2008, 2010

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 21	Invited Presentations: 5
Abstracts: 29	Fact Sheets: 0
Book Contributions: 0	Posters: 0
Conference Proceedings: 5	Popular Magazines: 0
Numbered Extension Publications: 17	Patents/Genbank Register: 0
Reports of Progress: NA	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$729,908
As Co-PI: \$443,444
Subtotal: \$1,173,352

External – Competitive

As PI: \$449,228
As Co-PI: \$700,000
Subtotal: \$1,149,228

External – Gift

As PI: \$586,000
As Co-PI: \$140,650
Subtotal: \$726,650

Total funding received: \$3,049,230

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Research:

- Generated novel quantitative data to re-parameterize the current NRC nutrient prediction model; accounting for gastrointestinal use. This area has expanded to studying the impact of peripheral protein synthesis on whole-body energy metabolism and amino acid and energy substrate metabolism by the splanchnic tissues.
- Obtained funding and conducted research studying the impact of fescue-derived alkaloids on mammary gland gene expression and cellularity in lactating dairy cows.
- Developed a funded research program in the area of feline nutrition.
- Initiated a research program emphasizing growth and health of feedlot cattle during the early receiving or transition phase and subsequent impact of this period on overall feedlot performance and carcass quality

Teaching:

- Took the duties of primary instructor for ASC/PHY 601 after the faculty member in charge of the course (Dr. Shillo) left the university.
- Taught ASC 681 four-times with improving course evaluations; most recent exceed university, college, and department averages.

Goals for Next Five Years

Teaching: Incorporate practical labs and research approaches into graduate courses.

Research: To continue a funded research program in nutrition and metabolism.

FACULTY RESUME (2005-2011)

Name: Melissa C. Newman

Academic Rank: Associate Professor

Year of First UK Appointment: 1998

Specialization: Microbiology

Average % DOE

Research: 65.6

Extension:

Teaching: 34.4

Academic Background

- | Degree | Institution |
|----------------|--|
| 1. 1990 | Ph.D., University of Kentucky, Lexington, Kentucky |
| 2. 1987 | M.S., University of Kentucky, Lexington, Kentucky |
| 3. 1984 | B.S. and A.S. Thomas More College, Crestview Hills, Kentucky |

Committees, Awards, Offices, etc.

Elected/Appointed Offices

1. Food Systems Innovation Center
2. University Faculty Senate
3. Council of Food Science Administrators

Teaching – Advising

Total number of undergraduate advisees:8

Total number of graduate advisees:5

Number of graduate students graduated: M.S.: 4 Ph.D.:4

Number of graduate committees (excluding your students) M.S.: 6 Ph.D.:3

Courses Taught

FSC 530 Food Microbiology

FSC 540 Food Sanitation

FSC 630 Foodborne Pathogens

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:12	Invited Presentations:5
Abstracts:10	Fact Sheets:0
Book Contributions:1	Posters:5
Conference Proceedings:0	Popular Magazines:1
Numbered Extension Publications:0	Patents/Genbank Register:1
Reports of Progress:0	Other (e.g. websites):2

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:0

As Co-PI:0

Subtotal: 0
External – Competitive
As PI:0
As Co-PI: \$6,750,000
Subtotal: \$6,750,000

External – Gift
As PI:22,000
As Co-PI:
Subtotal:22,000

Total funding received:6,772,000

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

My research area is pre- and post-harvest food safety and quality control. In recent years this worked has evolved to included activities to prevent, prepare for, respond to, and recover from non-routine emergencies resulting from intentional and non-intentional contamination affecting food products. I have concentrated on the control of foodborne pathogens both in the live animal and on the finished food products. This research includes the evaluation of novel feed additives to alter the microbial populations in the gastrointestinal tract of domestic livestock and handling techniques to extend shelf life and eliminate pathogenic bacteria in fresh and processed meat and produce.

My teaching responsibilities at the University of Kentucky have involved teaching of the five credit hour class “Food Microbiology” (FSC 530) both lecture and laboratory sessions each Fall. This is a requirement for all Food Science students in our program. In the spring of each even years I teach Food Sanitation (FSC 540), a three credit hour course, and odd years I teach Foodborne Pathogens (FSC 640). All three classes have undergone continuous modification during the last several years including the use of Blackboard to electronically provide resources to the students In addition I guest lectured for several Animal Science and Food Science classes and for CPH601 Occupation and Environmental health.

Goals for Next Five Years

Teaching: Continue to be innovative and include new teaching technologies as they become available. I n addition I intend to develop a food defense class to be taught on line

Research: The future direction of my research will continue to identify alternative methods for pathogen control both on the farm and in processed foods. In addition, we will increase our efforts to address the current concerns about food biosecurity. In this area, we intend to perform research directed at determining vulnerabilities in our current food systems. A logical result of this research will be the potential to make scientific recommendations for the protection of our nation’s food supply.

Extension:

FACULTY RESUME (2005-2011)

Name: O'Leary, Joseph

Academic Rank: Associate Professor

Year of First UK Appointment:1975

Specialization: Dairy Processing, Food Safety

Average % DOE

Research:

Extension:69.5

Teaching:30.5

Academic Background

Degree	Institution
1. B. Sc. Dy.	University College, Cork, Ireland
2. M. Sc. Dy.	University College, Cork, Ireland
3. Ph. D.	University of Minnesota

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.
- 2.
- 3.

Awards

- 1.
- 2.
- 3.

Committees

- 1.
- 2.
- 3.
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees:

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.: 4 Ph.D.: 6

Courses Taught

GEN 107 Introduction to Food Science (3 Credits) (every year)

FSC 306 Introduction to Food Processing (4 Credits) (3 times)

FSC 538 Food Fermentation and Thermal Processing (4 Credits) (5 times)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:	Invited Presentations:
Abstracts:	Fact Sheets:
Book Contributions:	Posters:
Conference Proceedings:	Popular Magazines:
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI:
As Co-PI: \$2,517, 137
Subtotal: \$2,517, 137

External – Gift

As PI:
As Co-PI:
Subtotal:

Total funding received: \$2,517, 137

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Contributed a large part of our teaching program during this period.
In Extension I help people through educational programs such as HACCP, BPCS, etc and also as a process authority by helping to formulate and safely process their products.
Made a major contribution to the FSIC.

Goals for Next Five Years ?

Teaching: Continually update teaching materials to current industry practices

Research: Continue on Hometown Security projects

Extension: Continue to work with FSIC to obtain new clientele

FACULTY RESUME (2005-2011)

Name: Anthony Pescatore

Academic Rank: Extension Professor

Year of First UK Appointment: 1986 Specialization: Poultry

Average % DOE Research: Extension:100 Teaching:

Academic Background

Degree	Institution
1. BS with honors	Michigan State University
2. MS	Michigan State University
3. PhD	Texas A&M University
4. MBA	Wilmington College

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. President: Federation of Animal Science Societies
2. President / Past President: Poultry Science Association
3. Interim Treasurer : Federation of Animal Science Societies

Awards

1. 2008 Poultry Science Association Fellow Award
2. 2011 Kentucky Association of Extension Professionals Outstanding Project
The Poultry Energy Efficiency Project
3. 2007 Kentucky Association of Extension Professionals Outstanding Project
The Pandemic Flu project

Committees

1. Poultry Science Association Fellows Committee (chair)
2. Poultry Science Association Foundation Board
3. AFS Faculty Merit evaluation committee
4. AFS Promotion and Tenure Committee
5. FASS Congressional Scientific Fellow selection committee

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees: 1

Number of graduate students graduated: M.S.: Ph.D.:

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.:2

Courses Taught

ASC 470 Capstone: Spring 2010 and Spring 2011

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:18	Invited Presentations: 47
Abstracts: 90	Fact Sheets: 34
Book Contributions: 3	Posters:
Conference Proceedings: 23	Popular Magazines: 3
Numbered Extension Publications:6	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites): 3 websites, 2 MPU Manuals

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI: \$681,366
As Co-PI: \$430,000
Subtotal: \$1,111,366

External – Gift

As PI: \$840,000
As Co-PI:
Subtotal: \$840,000

Total funding received: \$1,951,366.00

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

The energy project has increased the awareness of growers about energy conservation. Through local meetings and statewide conferences educational opportunities have been provided to producers throughout the state. The Poultry Producers Manual that is available online is an outstanding reference book of growers. The poultryenergy.com website has 250 hits per week.

A new web site smallflocks.com has been created and receives 500 hits per week. Thirty fact sheets have been created and posted on the web site. Agent in service training has been offered five times at three locations in the state. County meeting on small poultry flocks have been conducted. These efforts have increased the amount of reliable information available to this population. Processing and consumer safety are still an issue so I continue to work with t Kentucky State University, Department of Health, KY Department of Agriculture and Partners for Family Farms to develop operating procedures for mobile processing trailer and conducted training programs for small flock producers.

The 4H program in poultry continues to expand. A concentrated effort over the last four years with area trainings for 4Hers and training for agents and leaders has increased awareness of the programs. Resources for agents and leaders have been developed and are available on line. Record numbers of teams are now competing in Avian Bowl. The embryology program is one the biggest animal programs.

The Alltech/UK Alliance for Nutritional Research at Coldstream Research Park has become a model for industry and university cooperation. The Productivity of the research group has resulted in referred journal articles, and abstracts. The information generated has been presented at conferences and scientific meetings through the US and Europe. Based on the alliance research the use of organic selenium in breeder diets has become well accepted by the poultry

I have been called on by fellow faculty members to share my expertise in poultry science in the academic program. ASC 470 Capstone: Issues in Animal Agriculture. Course instructor for the required senior level course that deals with issues in animal agriculture. Course is an integral part of our student assessment process in the Department of Animal and Food Sciences. Purpose of course is to expand the world view of our students by discussion of issues facing animal agriculture. In addition, their communication skills and critical thinking skills are developed through course activities and presentations at a public forum. ASC 340 Poultry Science. Responsible for the poultry disease section which consisted of three lectures. ASC 102 Application of Animal Science: Conduct 2 weeks of laboratory on poultry (four lab sections) ASC 101 Domestic Animal Biology: Conduct avian anatomy laboratory for eight lab sections

Goals for Next Five Years

Teaching: Continue to develop Capstone course to enhance our graduates' ability to think and understand issues facing animal agriculture

Research: Continue to build on the success of the Alltech / University of Kentucky Alliance for Nutritional research and increase activity in nutrogeonomics

Extension: Develop eXtension COP to be outstanding source of information

FACULTY RESUME (2005-2011)

Name: Gregg Rentfrow

Academic Rank: Assistant Extension Professor

Year of First UK Appointment: 2006

Specialization: Meat Science

Average % DOE

Research: 0%

Extension: 77.2%

Teaching: 22.9

Academic Background

Degree	Institution
1. Ph.D.	University of Missouri
2. M.S.	University of Illinois
3. B.S.	University of Illinois

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. 2011 Intercollegiate Meats Judging Coaches Association Board of Directors (elected)
2. Kentucky HACCP (Hazard Analysis and Critical Control Points) Coordinator, 2010 – present (appointed by USDA-FSIS)

Awards

1. Achievement Award; 2011, American Meat Science Association
2. Outstanding Service to Kentucky's Beef Industry; 2011, Kentucky Cattlemen's Association
3. Outstanding New Extension Faculty Award; 2009, Kentucky Association of State Extension Professionals

Committees

1. Intercollegiate Meats Judging Team Coaches Association; 2002 – present, American Meat Science Association
2. Kentucky Country Ham Producers, UK Representative to the Board of Directors; 2006 - present
3. 4-H Country Ham Project Planning Committee; Chair, 2006 - present
4. Beef IRM; 2006 - present
5. Reciprocal Meats Conference Planning Committee; 2011, American Meat Science Association

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 5

Number of graduate students graduated: M.S.: 2 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 7 Ph.D.: 4

Courses Taught

ASC 300 Meat Science, 100% Instruction of class, meets every fall semester

ASC/FSC 630 Advanced Meat Science, 50% Instruction of class, meets spring semester during odd numbered years

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 3	Invited Presentations: 15
Abstracts: 24	Fact Sheets: 0
Book Contributions: 0	Posters: 24
Conference Proceedings: 0	Popular Magazines: 5
Numbered Extension Publications: 8	Patents/Genbank Register: 0
Reports of Progress: 0	Other : Extension video: 1
	4-H Discovery CD: 1
	4-H Curriculum: 1

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:
As Co-PI: 1
Subtotal: \$800

External – Competitive

As PI: 1
As Co-PI: 14
Subtotal: \$3,346,041

External – Gift

As PI: 3
As Co-PI: 2
Subtotal: \$70,500

Total funding received: \$3,417,341

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Food Systems Innovation Center – the FSIC has aided over 50 clients develop and evaluate food products and has HACCP trained over 100 individuals. Recently, the FSIC was approved by the FDA as a Better Process Control School location.

University of Kentucky Meat Cutting School – the UKMCS has trained over 500 meat cutters, meat processors, and chefs.

4-H Country Ham Project – The project has grown from 433 from 38 counties in 2006 to 634 4-Hers from 54 counties in 2011.

4-H State Meats Judging Contest – The state contest has grown from 12 4-Hers from 2 counties in 2006 to 49 from 8 counties in 2011.

Goals for Next Five Years

Teaching: Inspire more students to pursue careers in the meats industry.

Research: Continue to respond to the needs of the department

Extension: Continue to grow and expand the FSIC, UKMCS, and the 4-H Country Ham Project. I would like to develop a Master Butcher program.

FACULTY RESUME (2005-2011)

Name: Mary G. Rossano

Academic Rank: Assistant Professor

Year of First UK Appointment: 2007

Specialization:

Average % DOE

Research: 32

Extension: 0

Teaching: 68

Academic Background

Degree	Institution
1. Ph.D.	Michigan State University
2. M.S.	Michigan State University
3. B.S.	Michigan State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.
- 2.
- 3.

Awards

- 1.
- 2.
- 3.

Committees

1. Education Committee, American Association of Veterinary Parasitologists
2. Dept. of Animal and Food Sciences committee for undergraduate assessment
3. Equine Science and Management Curriculum Committee
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees: 77

Total number of graduate advisees: 2

Number of graduate students graduated: M.S.: 0 Ph.D.: 0

Number of graduate committees (excluding your students) M.S.: 0 Ph.D.: 1

Courses Taught

ASC 320 (face-to-face) Equine Management, Fall 2007-2011

ASC 320 (online) Equine Management, Twice per year, 2007-2011

EQM 105 Equine Behavior and Handling, Spring 2008-2011

ASC 101 Domestic Animal Biology, Fall 2007-2011

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 9	Invited Presentations: 5
Abstracts: 7	Fact Sheets: 0
Book Contributions: 0	Posters: 0
Conference Proceedings: 0	Popular Magazines: 3
Numbered Extension Publications: 0	Patents/Genbank Register: 1
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$1,369
As Co-PI: \$200,000
Subtotal: \$201,369

External – Competitive

As PI: 0
As Co-PI: \$139,500
Subtotal:

External – Gift

As PI: 0
As Co-PI: 0
Subtotal: 0

Total funding received: \$340,869

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Teaching: I have built my teaching and advising program such that it is currently 70% of my distribution of effort. During a typical year, I teach 5 courses with a total of 13 laboratory sections. I advise 77 students. I have participated in the design and conduct of a prospective study of student assessment in our department. **Research:** I have completed research that I was involved with in my previous position, resulting in 11 refereed publications and 1 patent. My research at the University of Kentucky utilizes epidemiological methods to study student learning outcomes, predictors of academic success, equine surveys of populations and economics, the efficacy of anthelmintic drugs in horses and alternative methods of parasite control. Thus far, 2 refereed publications and 7 abstracts have been produced.

Goals for Next Five Years

Teaching: Continue to teach existing courses with ever-increasing numbers of students. Devise new approaches to utilize technology to enhance active learning, while still providing hands-on experiences for students in laboratory. Participating in student assessment effort will provide opportunities to improve my courses and the curriculum overall. Continue to advise 65-80 students and mentor individual students for independent studies and other projects.

Research: Publish results of parasitological research recently completed, publish findings of assessment research and complete the project of my PhD. student (a serological test for *Parascaris equorum* infection). Pursue funding for additional parasitological research.

FACULTY RESUME (2005-2011)

Name: William J. Silvia

Academic Rank: professor

Year of First UK Appointment: 1985

Specialization: Reproductive Physiology

Average % DOE

Research: 50%

Extension:

Teaching: 50%

Academic Background

Degree	Institution
1. B.S. Animal Sciences	Cornell University
2. M.S. Animal Sciences	West Virginia University
3. Ph.D. Reproductive Physiology	Colorado State University
4. Sabbatical Leave, Biochemistry	Michigan State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Director of Undergraduate Studies
2. Coordinator of the Dairy Section
3. UK Coldstream Dairy Unit supervisor

Awards

1. Master Teacher Award UK ΓΣΔ (2010)
2. Great Teacher Award UK Alumni Association (2009)
3. Fulbright Fellowship, Argentina (2010)
4. George Fleming Prize, from the editors of the *Veterinary Journal* (2006)

Committees

1. Curriculum Committee (chair)
2. Academic Programs Coordinator Search Committee (chair)
3. ad hoc assessment committee

Teaching – Advising

Total number of undergraduate advisees: 35

Total number of graduate advisees: 2

Number of graduate students graduated: M.S.:2 Ph.D.:1

Number of graduate committees (excluding your students) M.S.: 0 Ph.D.: 3

Courses Taught:

Current teaching assignments:

- ASC 101 (Domestic Animal Biology)
- ASC 660 (Biology of Reproduction)
- GEN 300-008 (Wildlife Biology and Management Applications)

Other teaching assignments during the review period:

- ASC 364 (Reproductive Physiology of Mammals) labs only
- ASC 420G (Dairy Cattle Science)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 7	Invited Presentations: 49
Review Articles:0	
Abstracts: 12	Fact Sheets:
Book Contributions: 0	Posters:
Conference Proceedings:	Popular Magazines:12
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)External – Competitive

As PI: \$97,492

As Co-PI: \$466,074 (with Bryan Hains, Community Leadership Development)

Subtotal: \$563,566

External – Gift

As PI: \$20,305

As Co-PI:

Subtotal: \$20,305

Total funding received: \$583,871**Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:**

Research: In addition to Fulbright and Fleming research awards mentioned above, obtained funding to support research in the area of endocrine regulation of estrus expression. Collaborated on project to evaluate the productivity of crossbred dairy cattle. Published my first peer-reviewed research article in the area of comparative anatomy.

Teaching: In addition to assignments and awards mentioned above, oversaw the renovation of N-11, a lab that will support the teaching objectives in ASC 101. Instituted a system of undergraduate peer mentors to assist with instruction in ASC 101. Helped implement the curriculum revised in 2003.

Goals for Next Five Years

Teaching: continue to develop and improve ASC 101, particularly through the use of online instructional tools. Add the course ‘Wildlife Biology and Management Applications’ to the ASC curriculum. As DUS, organize departmental efforts in undergraduate research, increase opportunities for study abroad and

Research: continue research efforts if dairy cattle reproductive biology with a focus on estrus expression, ovarian follicular cysts and regulation of LH secretion by progesterone. Build on undergraduate research efforts in the area of comparative anatomy. Take sabbatical leave (University of Calgary, University of Missouri) to initiate research to sequence and characterize the expression of placental genes that code for secretory proteins in large bovids.

FACULTY RESUME (2005-2011)

Name: Surendranath P. Suman

Academic Rank: Assistant Professor

Year of First UK Appointment: 2006

Specialization: Meat Science

Average % DOE

Research: 79%

Extension: 0%

Teaching: 21%

Academic Background

Degree	Institution
1. Ph.D.	University of Connecticut, Storrs, CT, USA
2. M.V.Sc.	Indian veterinary Research Institute, India
3. B.V.Sc. & A.H.	Kerala Agricultural University, India

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Chair, *Meat Science* Journal Committee, American Meat Science Association (2010–2013)
2. Member-At-Large, Muscle Foods Division, Institute of Food Technologists (2010–2012)
3. Overseas Coordinator, Indian Meat Science Association (2008–Present)

Awards

1. International Meat Secretariat Prize (2009)
2. Outstanding Paper Presentation Award, American Oil Chemists' Society (2006)

Committees

1. Member, Committee for revising Guidelines for Meat Color Evaluation, American Meat Science Association (2007–2012)
2. Member, Reciprocal Meat Conference Program Planning Committee, American Meat Science Association (2009–2012)
3. Member, International Committee, American Meat Science Association (2010–2013)
4. Member, Distinguished Research Award Selection Committee, American Meat Science Association (2006–2009)
5. Member, Research Protocol Committee, American Meat Science Association (2006–2009)

Teaching – Advising

Total number of undergraduate advisees: 8

Total number of graduate advisees: 11

Number of graduate students graduated: M.S.: 0 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 3 Ph.D.: 6

Courses Taught

1. FSC 304, Animal Derived Foods (Spring 2007, 2008, 2010)
2. FSC 642, Food Pigments (Fall 2009)
3. FSC 430, Sensory Evaluation of Foods (Fall 2010)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 22	Invited Presentations: 14
Abstracts: 25	Fact Sheets: 0
Book Contributions: 1	Posters: 30
Conference Proceedings: 7	Popular Magazines: 0
Numbered Extension Publications: 0	Patents/Genbank Register: 0
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$6,200

As Co-PI: 0

Subtotal: \$6,200

External – Competitive

As PI: \$541,111

As Co-PI: \$90,000

Subtotal: \$631,111

External – Gift

As PI: \$1,400

As Co-PI: 0

Subtotal: \$1,400

Total funding received: \$638,711

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

I have secured five extramural competitive research grants focused on meat quality from federal as well as non-federal agencies and received two major awards (1 international and 1 national). In this period, I have published 22 peer-reviewed journal articles, 25 abstracts, 1 book-chapter, and 7 conference proceedings. Currently, I serve on the editorial boards of 3 international journals. My graduate students have won 5 national level awards and scholarships from various professional associations. I have taught 3 courses and developed 2 new courses at the University of Kentucky.

Goals for Next Five Years

Teaching: Continue improving the teaching methodology and position myself as a valuable instructor at University of Kentucky.

Research: Continue securing funds from federal as well as non-federal agencies to support the research program and publish the research results in a timely manner.

Extension: None

FACULTY RESUME (2005-2011)

Name: Kristine Urschel

Academic Rank: Assistant Professor

Year of First UK Appointment: 2008

Specialization: Equine nutrition and physiology

Average % DOE

Research: 60

Extension: 0

Teaching: 40

Academic Background

Degree	Institution
1. BSc	University of Alberta, Edmonton AB, Canada
2. PhD	University of Alberta, Edmonton AB, Canada
3. Postdoctoral	Virginia Tech, Blacksburg VA, United States

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Editorial Board member (2009 – present), Journal of Animal Science
2. Treasurer (2011 – 2012), American Society of Nutrition Experimental Animal Nutrition Research Interest Section
3. Secretary (2010 – 2011), American Society of Nutrition Experimental Animal Nutrition Research Interest Section

Committees

1. Advisor for the Animal and Food Sciences Graduate Student Association (2010 – present)
2. Member of the Department of Animal and Food Sciences Website Review Committee (2010 – present)
3. Member of the Department of Animal and Food Sciences Display Committee (2009)

Teaching – Advising

Total number of undergraduate advisees: 9

Total number of graduate advisees: 2

Number of graduate students graduated: M.S.: 0 Ph.D.: 0

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.: 1

Courses Taught

ASC 325 (Animal Physiology): Fall 2009 (43 students), 2010 (47 students), 2011 (72 students)

ASC 410G (Equine Science): Spring 2010 (40 students), 2011 (42 students)

GEN 100 (Issues in Agriculture): Fall 2009 (20 students)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 3	Invited Presentations: 4
Abstracts: 19	Fact Sheets: 0
Book Contributions: 1	Posters: 2
Conference Proceedings: 0	Popular Magazines: 0
Numbered Extension Publications: 0	Patents/Genbank Register: 0
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

Subtotal: \$0

External – Competitive

As PI: \$232,695 direct costs (\$277,622 total)

Subtotal: \$232,695 direct costs (\$277,622 total)

External – Gift

Subtotal: \$0

Total funding received: \$232,695 direct costs (\$277,622 total)

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Since beginning my faculty appointment in August 2008, I have established my research laboratory and am beginning to gain recognition as an independent researcher in the field of equine protein nutrition and muscle physiology. I have received 3 externally competitive grants: Morris Animal Foundation First Award (not typically awarded to non-Veterinarians), a USDA-AFRI seed grant in the Animal Growth and Nutrient Utilization section (equine grants have historically not been funded in this area), and a Waltham-Buckeye Equine Grant. My first PhD student is expected to graduate in the Fall of 2011 and has received an NIH post-doctoral training fellowship to pursue her post-doctoral training in the University of Kentucky Department of Physiology. This student was also selected as a finalist in a prestigious graduate student competition for the American Society of Nutrition (Nutritional Science Council graduate student competition), where she was the only finalist presenting research obtained from an agricultural animal model. I have been invited to speak at National (2010 ASAS-ADSA Joint Annual Meeting) and International (2011 Alltech Symposium) venues. I have also given numerous abstract presentations at National and International meetings. I have had 2 peer-reviewed manuscripts published from 2010 and 2011 and a third was recently accepted for publication. I have also prepared 1 book chapter for a new book called “Equine Applied and Clinical Nutrition,” which is in the final stages of editing. Collaborations have been established both within the University of Kentucky (Department of Veterinary Science, Department of Physiology) and from outside institutions (Waltham Nutrition, Buckeye Nutrition, Penn State University). For teaching, I have taken over the primary teaching responsibility of two courses: Animal Physiology and Equine Science. For each of these courses, I have revised the curriculum and included activities and assignments to encourage the students to read and critique the available scientific literature. My teaching evaluations have been near the College and Department mean for each semester that I have taught. I currently preparing a graduate level course about macronutrient metabolism in domestic animals, which will be taught for the first time in Spring 2012.

Goals for Next Five Years

Teaching: Develop a graduate level macronutrient metabolism class; Continue to improve my teaching in my undergraduate classes by incorporating more discussions and activities and reducing the amount of PowerPoint-style lectures; Increase my involvement in undergraduate research projects by mentoring students and making my lab available to interested students

Research: Continue to develop my research program in the area of equine protein and muscle metabolism and secure long term extramural funding both through the USDA-AFRI program, other granting agencies and through industry partnerships; increase the size of my research group to include 3-4 graduate students at all times; continue to develop collaborations within and outside of the University of Kentucky

FACULTY RESUME (2005-2011)

Name: Eric Vanzant **Academic Rank:** Assoc. Professor
Year of First UK Appointment: 1998 **Specialization:** Ruminant Nutrition
Average % DOE **Research:** 77.7 **Extension:**0 **Teaching:** 22.3

Academic Background

Degree	Institution
1. B.S.	The Ohio State University
2. M.S.	Kansas State University
3. Ph.D.	Kansas State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.
- 2.
- 3.

Awards

- 1.
- 2.
- 3.

Committees

1. University of Kentucky Research Conflict of Interest Committee (appointed by Univ. President)
2. Dept. of Anim. & Food Sci. Assessment Committee (Chair)
3. College of Agriculture Sustainable Ag and Food Systems Committee (Member)
4. Dept. of Anim. & Food Sci. Curriculum Committee (Member)
5. College of Agriculture Sustainable Ag Program Curriculum Committee (Member)

Teaching – Advising

Total number of undergraduate advisees: 7

Total number of graduate advisees: 12

Number of graduate students graduated: M.S.: 4 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 12 Ph.D.: 4

Courses Taught

ASC 378 Animal Feeding & Nutrition, Fall 2005, 2006, 2007, 2008, 2009, 2010, 2011

(co-instructor in all years except 2009)

ASC 380 Feeds & Feeding, Spring 2005 (last year the course was offered)

ASC 470 Capstone for Animal Agriculture, Fall 2009, 2010, 2011

ASC 684 Advanced Ruminant Nutrition, Spring 2006 (co-instructor), 2008, 2010

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 13	Invited Presentations: 4
Abstracts: 20	Fact Sheets:
Book Contributions: 2	Posters:
Conference Proceedings: 1	Popular Magazines:
Numbered Extension Publications: 11	Patents/Genbank Register:
Reports of Progress: N/A	Other (e.g. websites):

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$130,270
As Co-PI: \$727,264
Subtotal: \$857,534

External – Competitive

As PI: \$906,841
As Co-PI: \$894,923
Subtotal: \$1,801,764

External – Gift

As PI: \$2,000
As Co-PI: \$625,500
Subtotal: \$627,500

Total funding received: \$3,286,798

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Research:

- Derived quantitative data to enhance predictive models of beef cattle performance: including accounting for GI use in NRC nutrient supply predictions and improving models for predicting beef cattle growth under grazing conditions.
- Developed quantitative data for grazing management strategies on fescue-based systems, allowing economic modeling to improve decision support systems for producers.
- Initiated research evaluating growth and health of receiving cattle, with an emphasis on refining protein requirements and nutritional impacts on cattle health and subsequent feedlot performance.
- Developed a unique approach for remote/continuous monitoring of cattle health, including hardware and software systems.

Teaching:

- Have refined and focused the laboratories for ASC378, including migration to a blended, online + in-person instructional approach for teaching diet formulation strategies.
- Refined instructional approach in our departmental capstone course with a large emphasis on enhancing critical thinking skills – including rigorous assessment approaches.
- Have led departmental-level assessment efforts for our undergraduate program.

Goals for Next Five Years

Teaching: Increase use of blended instructional approaches; enhance critical thinking skills.

Research: Identify and obtain funding to continue research in beef cattle nutrition/health.

FACULTY RESUME (2005-2011)

Name: Youling Xiong

Academic Rank: Professor

Year of First UK Appointment: 1990

Specialization: Food Science

Average % DOE

Research: 83%

Extension:

Teaching: 17%

Academic Background

Degree	Institution
1. Ph.D.	Washington State University
2. M.S.	Oregon State University
3. B.S.	Jiangnan University (China)

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Associate Editor, Journal of Food Science (2010-present)
2. Section Editor (muscle biochemistry), Journal of Muscle Foods (2007-2009)
3. Grants Review Panel, USDA NRI (2006, 2008)

Awards

1. Elected Fellow, Institute of Food Technologists (2010).
2. University Research Professor, University of Kentucky (2011)
3. Thomas Poe Cooper Distinguished Research Award, COA, University of Kentucky (2009)

Committees

1. Research Protocol Committee (2008-2011), American Meat Science Association (AMSA)
2. RMC Program Planning Committee (2001-2007), AMSA
3. Food Industrial Achievement Award Committee (2009), Institute of Food Technologists (IFT)
4. Annual Meeting Planning Subpanels (Food Chemistry; Nutrition & Health), IFT
5. IFT's Certified Food Scientist Ad Hoc Group (2010).

Teaching – Advising

Total number of undergraduate advisees: 22

Total number of graduate advisees: 27

Number of graduate students graduated:

M.S.: 5

Ph.D.: 9

Number of graduate committees (excluding your students) M.S.: 21

Ph.D.: 11

Courses Taught

Food Chemistry (FSC 434G, 4 cr.)

Adv. Meat Science (FSC 630, 4 cr.)

Food Proteins (FSC 638, 3 cr.)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 77	Invited Presentations: 37
Abstracts: 75	Fact Sheets: 0
Book Contributions: 7	Posters: 0
Conference Proceedings: 15	Popular Magazines: 0
Numbered Extension Publications: 0	Patents/Genbank Register: 0
Reports of Progress: 10	Other (e.g. websites): 0

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$40,000

As Co-PI: 0

Subtotal: \$40,000

External – Competitive

As PI: \$531,654

As Co-PI: \$2,501,127

Subtotal: \$3,032,781

External – Gift

As PI: \$158,366

As Co-PI: 0

Subtotal: \$158,366

Total funding received: \$3,231,147

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Research over the past 6 years has concentrated on the antioxidative peptides and protein oxidation in fresh and processed muscle foods. A major finding is that mild oxidation promotes water-binding and texture-forming properties of meat products; and the loss of meat quality due to the exposure to strong oxidants can be alleviated by antioxidative peptides prepared from soy, potato or zein proteins. During this period, our research group has obtained more than \$3 million funding, published 77 refereed journal papers, and graduated 5 M.S. and 9 Ph.D. students. These accomplishments have led to several major awards conferred.

Teaching includes 3 courses: Food Chemistry (FSC 434G, 4 cr.), Adv. Meat Science (FSC 630, 4 cr.), and Food Proteins (FSC 638, 3 cr.). Student course evaluation averaged about 3.7/4.0.

Goals for Next Five Years

Teaching: Emphasize hands-on experience; increase class field trips.

Research: Continue the effort to secure extramural funding; enhance international collaboration.

Extension: None.

Animal and Food Sciences

Self Study
2005 – 2011

Appendices

Animal and Food Sciences

Self Study 2005 - 2011

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Animal and Food Sciences

Appendix I

2009 – 2014 Strategic Plan



Department of Animal and Food Sciences Strategic Plan

2009-2014



MISSION AND VISION ANIMAL AND FOOD SCIENCES

WHO WE ARE

The Department of Animal and Food Sciences addresses the major issues faced by animal agriculture today – production efficiency, sustainability, animal welfare, environmental stewardship, food safety and food quality – through our programs in research, instruction and extension. These issues represent challenges and areas for science-based discussions with clientele and consumers. We are involved in multidisciplinary research programs that advance our knowledge of animal biology and production systems and their relationship to the environment, as well as processing, preservation, and improvement of human foods. Our instructional programs focus on the application of science and technology to animal and food production. Our extension programs advance sustainable agricultural and food systems and assist our youth to develop character traits needed to be successful citizens.

OUR VISION

As a part of the Land Grant system, our teaching, research and extension programs strive to make a positive difference in people's lives.

LAND-GRANT VALUES

We are guided by the values underlying the land-grant philosophy:

- learning – enhancing access to educational opportunities for all;
- discovery – expanding knowledge through research; and
- engagement – collaborating with diverse institutions, communities, and people to improve lives.

A hallmark of our work is the integration of these three values – learning, discovery, and engagement – into programs that make a difference.

OUR MISSION

The mission of the Department of Animal and Food Sciences is to:

- develop, improve, and promote sustainable animal production systems;
- improve the health and well-being of animals in food and non-food production systems;
- enhance the quality, utilization and safety of food products;
- facilitate life-long learning through:
 - creative research and discovery,
 - challenging and encompassing education,
 - effective engagement and technology transfer.

GOAL 1

Prepare Students for Leadership in an Innovation-Driven Economy and Global Society

The Department of Animal and Food Sciences takes pride in offering an educational program that provides students with current, research-based information and a solid base of concepts related to animal products, production, performance, and well-being. The Department strives to attract, retain, and graduate outstanding students who will become leaders in their professions and communities. This includes providing appropriate advising to assist students in achieving their academic goals in a timely manner, extracurricular activities to complement coursework and facilitation of internship opportunities and other interactions with the animal industry.

Most Significant Challenges

1. Classroom space is increasingly limited and some current classrooms are inadequately equipped.
2. Potential increases in funding opportunities are limited.
3. The current system of tracking graduates needs to be strengthened and improved.
4. Freshman retention and six-year graduation rates are less than desired.

Strategies

1. Provide the best possible learning environment for students with dedicated faculty, instructors, advisors and staff.
2. Implement current and new technology in the classroom, including the development of virtual classrooms.
3. Foster student participation and growth through personal and professional development opportunities beyond the classroom.
4. Use the experience of incoming students, career paths of recent graduates, and feedback from graduates' employers to help drive curriculum changes.
5. Expand faculty involvement in and financial support of Departmental scholarship and recruitment programs.
6. Increase expertise and recognition of faculty for academic and extracurricular advising.
7. Encourage students to add business related coursework in their degree programs.

Key Indicators, by 2014 the Department will have:

1. Increased the first-to-second year retention rate of full-time, degree-seeking students in the program to over 65%.
2. Increased scholarship funding awarded to students within the department by 10%.
3. Increased the percentage of full-time students graduating within a 6 year period from time of first enrollment.
4. Established a working database of graduates; actively monitored career paths.

GOAL 2
Promote Research and Creative Work to Increase the Intellectual, Social and Economic Capital of Kentucky and the World Beyond its Borders

The Department of Animal and Food Sciences' land-grant mission encourages truly creative research endeavors that result in the discovery of new knowledge. The Department's research activities will be focused on acquiring fundamental knowledge related to animal biology and management, animal and human nutrition, processing of food products and ensuring of their safety/security, and the interface of animal agriculture with the environment. The Department aspires to capitalize on the individual and collective achievement of our faculty by applying discoveries to the improvement of agriculture, industry, families, and communities at the state and national levels.

Most Significant Challenges

1. Infrastructure and facilities limit the potential for continued growth of research:
 - Increasing operating costs and lack of adequate equipment funds hinder research capability and productivity. Our most successful research programs have insufficient equipment support for further expansion and development.
 - Off-campus research facilities (farms) are not well maintained due to repeated state, university, and college budget cuts.
2. Repeated budget cuts have created key vacancies in both faculty and staff lines which pose real challenges to attain the top 20 status.

Strategies

1. Aggressively pursue funding opportunities and sources that support fundamental/applied research, particularly federal competitive and targeted initiative funds.
2. Identify opportunities for both intra- and extramural equipment funds and encourage faculty to apply to those programs.
3. Encourage faculty to include salary savings in federal grant submissions as an incentive to generate more extramural support.
4. Strengthen existing and develop new multi-disciplinary research programs that target funding opportunities available only to multi-university (institution) collaborations.
5. Continue to actively compile, document and communicate impacts of our research.

Key Indicators, by 2014 the Department will have:

1. Maintained the annual total external grant awards above \$100,000 per research FTE.
2. Maintained at least 2 graduate students per research FTE.
3. Maintained at least four extramurally funded postdoctoral scholars/research associates.
4. Obtained at least two pieces of major equipment.
5. Increased patent submissions by 20%.
6. Maintained the number of refereed journal publications per research FTE above 3 per year.

GOAL 3

Develop the Human and Physical Resources of the Department to Achieve Top 20 Stature

The Department of Animal and Food Sciences offers access to knowledge and learning for citizens and students throughout the Commonwealth. Our mission is to discover and disseminate knowledge through innovative programs in teaching, research and extension. We will continue to recruit and retain faculty and students of the highest caliber in order to maintain our status as one of the top departments of its kind in the nation.

Most Significant Challenges

1. Infrastructure and capacity appear likely to constrain further growth and advancement in all mission areas, and across most units in the Department. Limits have been reached in:
 - quantity and quality of office, laboratory, meeting and teaching space,
 - ability to sustain and update existing farm, laboratory and teaching facilities,
 - IT and communications support and hardware,
 - business and document management of grants/contracts, animal units and other functions.
2. Budget circumstances portend limited growth in faculty numbers, and may result in decreased faculty numbers. Expansion of enrollment or grant funding is difficult without addition of faculty.
3. Attracting, retaining and compensating highly skilled staff remains a challenge.
4. Recruitment or development of faculty at the most distinguished level (e.g., academy-level) remains severely limited by budget cuts and by the limitations in infrastructure for the development of state of the art laboratory and research facilities.

Strategies

1. We will strive to recruit, develop and retain nationally distinguished faculty and students.
 - We will opportunistically reallocate resources to retain exceptional mid-career faculty who bring elevated recognition and leadership to the department.
 - We will improve strategies for recruiting and developing new faculty who have the potential to become national leaders in their area of expertise.
 - We will continue to recruit and support excellent graduate students and postdoctoral scholars who can contribute to the research, teaching and extension missions of the Department.
2. We will further develop plans for expanding and enhancing the physical infrastructure needed to sustain the growth and advancement of the last decade.
3. We must seek increased funding for high-quality lab, teaching, and field facilities, as well as for extension programs and projects.
4. We will seek to improve recruitment, retention, and remuneration of staff.
5. We will continue to improve access to resources and infrastructure through enhanced business management, information technology, and support systems.

Key Indicators, by 2014 the Department will have:

1. Sustained its funding and publication record.
2. Increased the principal value of its endowment by 10%.
3. Continued its high level of nationally and internationally-recognized programs, faculty and graduate students.
4. Continued to renovate and maintain the functionality of existing facilities, laboratories and classrooms to support teaching, research and extension programs.

GOAL 4

Promote Diversity and Inclusion

The Department of Animal and Food Sciences is committed to creating an environment where diversity is valued and all individuals can fulfill their highest potential. Respect for diversity of thought, culture and all human differences is the cornerstone of all our actions. To implement this mission, diversity, fairness, and equity in policies and practices must be an essential part of learning, discovery and engagement.

Most Significant Challenges

1. Funding is limited for support of minority positions.
2. There is a paucity of qualified minority candidates for either faculty, staff or graduate student positions.

Strategies

1. Progress toward implementation of recommendations or objectives set forth by the department will be reviewed annually.
2. A network of partners with the 1890 land-grant universities, especially Kentucky State University, will be utilized to recruit faculty, staff and students and fulfill the different land grant missions.
3. The Department will utilize the Office of Diversity in support of recruitment of students, staff and faculty.
4. The Department will take advantage of financial resources available for the recruitment and retention of a diverse student body, faculty and staff.
5. Each Departmental Search Committee must actively pursue qualified minority and women candidates when positions are available.
6. The Department should promote and encourage interaction with established diverse disciplines (e.g. African American, Asian, Hispanic and Women's Studies programs).
7. Encourage the recognition of scholarly activity that may not fit traditional agriculture models.
8. The Department will seek to recruit undergraduate and graduate students from minority, under-represented and non-traditional agricultural areas (e.g. urban populations).
9. The Department will seek to recruit undergraduate students from minority, non-traditional agriculture areas and from under-represented groups for internships and work-study or student worker positions.
10. The Department will enhance the recruitment of doctoral students for the Lyman T. Johnson Graduate Fellowship.

Key Indicators, by 2014 the Department will have:

1. Sought qualified minority candidates for faculty and staff vacancies, graduate assistants and post-doctoral scholars.
2. Continued the inclusion of a diversity-related seminar that is held at least once yearly as part of the regular departmental seminar series.
3. Partnered with one or more 1890's land-grant institutions for recruitment of graduate students.

GOAL 5

Improve the Quality of Life for Kentuckians through Extension, Outreach and Service

Issues in the animal and food industries have created an unprecedented demand for knowledge- and research-based educational programs applicable to the needs of all Kentuckians. Economic development, leadership development, nutrition and health issues, opportunities for youth, and a rapidly changing agricultural landscape in Kentucky require a vital, progressive and responsive Animal and Food Sciences Cooperative Extension Service.

Most Significant Challenges

1. Ag Development Board funds have been critical to the success of Animal and Food Sciences Extension programs for over 5 years. These funds have become increasingly more limited and may expire in the near future. Alternative funding, alternative delivery methods or selective downsizing of programs will likely become necessary.
2. Adapting to new technologies available in the college for delivery of programs. This challenge is two-fold: difficult for Extension personnel to adapt to new technology; acceptance by some clientele audiences is not evident.
3. The college has implemented a requirement that newly hired Extension agents must complete their Master's degree. There are currently few opportunities for agents to take graduate level courses in Animal and Food Sciences and there are no graduate level distance learning courses in Animal and Food Sciences.
4. Operating funds for Extension and applied research becomes increasingly limited. Reliance on extramural sources necessarily increases. Opportunities for these alternative funding mechanisms are limited and extremely competitive.
5. In some species, increased concentration has led to sparse producer populations within individual counties. As a result, county level programming efforts are not effective use of resources in many cases. Regional programming increases travel distances for clientele and requires more coordination.

Strategies

1. Continue the pursuit of extramural funding from a variety of sources. In particular, the USDA-AFRI integrated extension and research grants provide new opportunities.
2. Sustain traditional Extension strengths while offering innovative new programs to serve increasingly diverse stakeholders.
3. Maintain and establish new Extension and outreach partnerships within and outside UK.
4. Increase the deployment of new information technologies such as eXtension, YouTube, electronic distribution lists, and enhanced web effectiveness.
5. Enhance training and support for outreach personnel statewide.
6. Work to develop courses/opportunities in Animal and Food Sciences for county educators to pursue graduate degrees.
7. Establish clearly understood measures to assess and communicate the impact of Extension programs.
8. Engage key constituencies – including commodity groups – to help the department achieve its objectives.

Key Indicators, by 2014 the Department will have:

1. Enhanced and refined Extension section of the Animal and Food Sciences website; tracked users through online tracking device.
2. Sustained current level of Extension educator training sessions and number trained.

3. Increased grantsmanship from sources other than the Ag Development Board. This will be evidenced by numbers of proposals submitted and funded and total funding amount.
4. Sustained departmental contacts at or above the current level.

Animal and Food Sciences

Appendix II

2005 – 2010 Peer-Reviewed Publications

Animal and Food Sciences: Publications 2005 - 2010

2005

~ Books and Book Chapters

Cromwell, G.L. Phosphorus Nutrition of Swine. pp. 607-634. In: Phosphorus: Agriculture and the Environment (J. T. Sims and A. N. Sharpley, Editors) American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, WI. 2005.

Hennig, B., M. Toborek, P. Ramadass, G. Ludewig, L.W. Robertson. Polychlorinated Biphenyls, Oxidative Stress and Diet. pp. 93-128. In: Reviews in Food and Nutrition Toxicity; edited by Preedy and Watson; CRC Press, Boca Raton, FL. 2005.

Kristensen, N.B., G.B. Huntington and D.L. Harmon. Splanchnic carbohydrate and energy metabolism in growing ruminants. pp. 405-432. In: Biology of Growing Animals Series. Biology of Metabolism in Growing Animals. D.G. Burrin and H. J. Mersman (Eds.). Elsevier, Boston. 2005.

Matthews, J.C. and G.L. Sipe. Patterns and Putative Regulatory Mechanisms of High-Affinity Glutamate Transporter Expression by Ruminants. pp. 263-287. In: Proceedings of the Xth International Symposium on Ruminant Physiology, Copenhagen, Denmark. 2005.

Newman, M.C. and S.M. Scheuren-Portocarrero. Multiple Antibiotic Resistance: What is the cure? pp. 201-212. In: Biotechnology in the Feed Industry. Nottingham University Press. 2005.

Russell, J.B. and H.J. Strobel. Microbial bioenergetics. pp. 165-186. In: J. Dijkstra, J.M. Forbes and J. France (ed.), Quantitative aspects of ruminant digestion and metabolism, 2nd ed. CABI Publishing, Wallingford, UK. 2005.

Thrift, F.A. and T.A. Thrift. Rationale for evaluating alternative sources of subtropically adapted beef cattle germplasm. pp. 6-15. In: A Compilation of Research Results Involving Tropically Adapted Beef Cattle Breeds. Southern Cooperative Series Bulletin 405. 2005.

Wang, L.L., Y.L. Xiong and B.H. Kong. Protein-derived natural antioxidants and bioactive peptides: protecting food quality and health. pp. 409-415. In *Nutritional Biotechnology in the Feed and Food Industries*, Lyons, T.P. and Jacques, K.A. (Eds.), Nottingham University Press, Nottingham, UK. 2005.

~ Refereed Journal Articles

Agouridis, C.T., D.R. Edwards, S.R. Workman, J.R. Bicudo, B.K. Koostra, E.S. Vanzant and J.L. Taraba. Streambank erosion associated with grazing practices in the humid region. Transactions of the ASAE. 48:181-190. 2005.

Agyyare, K.K., Addo, K., Xiong, Y.L. and Akoh, C.C. Effect of structured lipid on alveograph characteristics, baking and sensory properties of soft wheat flour. Journal of Cereal Science, 42:309-312. 2005.

Bailey, J.D., L.H. Anderson and K.K. Schillo. Effect of novel females and stage of the estrous cycle (estrus vs diestrus) on mating behavior in mature beef bulls. Journal of Animal Science 83:613-624. 2005.

Bailey, J.D., L.H. Anderson and K.K. Schillo. Effects of sequential or group exposure to unrestrained estrual females on expression of sexual behavior in sexually experienced beef bulls. Journal of Animal Science 83:1801-1811. 2005.

- Bertram, H.C., N.B. Kristensen, A. Maldendal, N.C. Nielsen, R. Bro, H.J. Andersen and D.L. Harmon. A metabolomic investigation of splanchnic metabolism using ¹H NMR spectroscopy of bovine plasma. *Analytica Chimica Acta* 536:1-6. 2005.
- Bothun, G.D, B.L. Knutson, H.J. Strobel and S.E. Nokes. Molecular and phase toxicity of compressed and supercritical fluids in biphasic continuous cultures of *Clostridium thermocellum*, *Biotechnology Bioengineering* 89:32-41. 2005.
- Bothun, G.D, B.L. Knutson, H.J. Strobel and S.E. Nokes. Liposome fluidization and melting point depression by pressurized CO₂ determined by fluorescence anisotropy. *Langmuir* 21:530-536. 2005.
- Cromwell, G.L., B.J. Henry, A.L. Scott, M.F. Gerngross, D.L. Dusek and D.W. Fletcher. Glufosinate herbicide-tolerant (LibertyLink) rice vs. conventional rice in diets for growing-finishing swine. *Journal of Animal Science* 83:1068-1074. 2005
- Flora, G., H. Pu, Y.W. Lee, R. Ravikumar, A. Nath, B. Hennig and M. Toborek. Proinflammatory synergism of ethanol and HIV-1 Tat protein in brain tissue. *Experimental Neurology*, 191: 2-12. 2005.
- Franklin, S.T., M.C. Newman, K.E. Newman and K.I. Meek. Immune parameters of dry cows fed mannan Oligosaccharide and subsequent transfer of immunity to calves. *Journal of Dairy Science* 88:766-775. 2005.
- Hamilton-Kemp, T., M.C. Newman, R. Collins, H. Elgaali, K. Yu and D. Archbold. Production of the long chain alcohols Octanol, Decanol, and Dodecanol by *Escherichia coli*. *Current Microbiology* 51:82-86. 2005.
- Hansen, L., M. Machala, L. Fischer, M. James, B. Hennig, H. Glauert, J.F. Narbonne, L. van Bree, T. Schultz, P. Grevatt, W. Suk, I. Holoubek, and L. Robertson. Research needs identified at the Second PCB Workshop in Brno, Czech Republic, May 7-11, 2002. *Toxicological and Environmental Chemistry*, 87: 261-265. 2005.
- Hatler, T.B., S.H. Hayes, L.H. Anderson and W.J. Silvia. Effect of a single injection of progesterone on ovarian follicular cysts in lactating dairy cows. *The Veterinary Journal* 170 (accessible online). 2005.
- Hayashi, K., H. Pu, J. Tian, I.E. Andras, Y.W. Lee, B. Hennig and M. Toborek. HIV-Tat protein induces P-glycoprotein expression in brain microvascular endothelial cells. *Journal of Neurochemistry* 93:1231-1241. 2005.
- Hennig, B., G. Reiterer, Z. Majkova, E. Oesterling, P. Meerarani and M. Toborek. Modification of environmental toxicity by nutrients: implications in atherosclerosis. *Cardiovascular Toxicology* 5(2):153-60. 2005.
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- Hester, P.Y., C.Z. Alvarado, S.F. Bilgili, J.H. Denton, A.M., Donoghue, A. Giesen, B M. Hargis, J.W. Kessler, F.N. Madison, G.W., Malone, P. Mavrolas, S.L. Noll, A.J. Pescatore, C.A. Ricks, F.E., Robinson, R.B. Shirley, M. Sifri, M.O. Smith, R.H., Stonerock, J.L., Wilson, M.J. Wineland, M.M. Beck and W.W. Saylor. Planning our Future: The Poultry Science Association Strategic Plan. *Poultry Science* 84:814-815. 2005.
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Zheng, Y., M. Toborek, and B. Hennig. 2010. Epigallocatechin gallate-mediated protection against tumor necrosis factor- α -induced monocyte chemoattractant protein-1 expression is heme oxygenase-1 dependent. *Metabolism* 59(10):1528-35.

Zhong, Y., B. Hennig, and M. Toborek. 2010. Intact lipid rafts regulate HIV-1 Tat protein-induced activation of the Rho signaling and upregulation of p-glycoprotein in brain endothelial cells. *Journal of Cerebral Blood Flow & Metabolism* 30(3):522-33.

** In addition, members of the department published 84 abstracts.*

Animal and Food Sciences

Appendix III

2005 – 2010 Grants and Contracts

Animal and Food Sciences Extramural Funding 2005-2010

2005

Total—\$5,249,869

- Brain Endothelial Cell TNF and Tat-Induced Cell Injury, National Institute of Mental Health, \$253,400—*Hennig, B.*
- Continuous Health Monitoring and Lifetime Tracking of Beef Cattle, Eastern Kentucky University, \$694,923—*Vanzant, E., Akers, J., Carter, C., Cox, N.*
- Editor of the Journal of Nutritional Sciences, Elsevier Science Inc., \$916,863—*Hennig, B.*
- Hexanal Synthesis in Isolated Soy Proteins, Cooperative State Research Education and Extension, \$198,089—*Boatright, W.*
- National Beef Cattle Evaluation Consortium, Cornell University, \$50,000—*Bullock, K.*
- Nutrient Utilization in the Dog, Hills Pet Nutrition Inc., \$115,000—*Harmon, D.*
- Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$2,162,704—*Hennig, B., Bastin, S., Gaetke, L.*
- Quality Attribute Characterization of Beef Long-Term Muscles, National Cattlemen's Beef Association, \$15,956—*Alderton, A., Mikel, W., Xiong, Y.*
- Rural Health Bioterrorism and Emergency Preparedness, University of Louisville, \$491,528—*Henning, J.C., Hustedde, R.J., Nesmith, W.C., Newman, M.C., Priddy, K.T., Scharko, P.B., Vincelli, P.*
- Shared Faculty Position with CSREES/USDA, Cooperative State Research Education and Extension, \$45,000—*Cromwell, G.*
- Tat-Mediated Brain Endothelial Cell Dysfunction, National Institute of Neurological Disorders and Stroke, \$286,406—*Hennig, B.*
- Understanding How Chlortetracycline Improves the Carcass Quality of Finishing Beef Cattle Project (CTC Project), Kentucky Cattlemen's Association, \$20,000—*Matthews, J., Bullock, K., McLeod, K.*

2006

Total—\$4,859,567

- Alternative Uses of Methyl Bromide in Country Hams, Mississippi State University, \$19,000—*Rentfrow, G.*
- Analyzing Production Systems to Improve the Marketability of Kentucky Goats, Kentucky Department of Agriculture, \$21,048—*Hutchens, T., Harmon, R.*
- Applied Beef Production Practices, Kentucky Beef Network, \$100,000—*Bullock, K., Anderson, L., Wilkerson, E.*
- Editor of the Journal of Nutritional Sciences, Elsevier Science Inc., (\$568,100)—*Hennig, B.*
- Effect of Concentrate Form and Composition on Exercising Horses, Cooperative Research Farms, \$43,098—*Lawrence, L.*
- Effects of Feed Additives and Processing on *in vitro* Digestibility, Cooperative Research Farms, \$13,824—*Lawrence, L.*
- Endocrine Regulation of Estrus Expression in Dairy Cows, Department of Agriculture, \$97,492—*Silvia, W.*
- Exploring Small Plant Variation in the Application of Standardized Pathogen Control Used in Beef Slaughter and Processing Food Safety Consortium for Small and Very Small Meat Processors, University of Nebraska, \$36,734—*Newman, M., Rentfrow, G.*
- Integrated Resource Management, Kentucky Beef Network, \$200,500—*Anderson, L., Bullock, K., Burris, W.*
- Master Cattlemen Program, Kentucky Cattleman's Association, \$258,100—*Burris, W., Anderson, L., Henning, J.*
- Master Grazer Educational Programming, Kentucky Beef Network, \$166,600—*Amaral-Phillips, D., Burris, W., Johns, J., Lacefield, G., Scharko, P., Smith Jr., S.*
- National Beef Cattle Evaluation Consortium, Cornell University, \$60,000—*Bullock, K.*
- Nutrient Utilization in the Dog, Hills Pet Nutrition Inc., \$150,880—*Harmon, D., McLeod, K.*
- Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$2,313,867—*Hennig, B., Bastin, S., Gaetke, L.*

Polycyclic Aromatic Hydrocarbon-Medicated STAT Signaling and Implications in Vascular Inflammation, American Heart Association, \$21,000—*Hennig, B., Oesterling, E.*

Rural Health Bioterrorism and Emergency Preparedness, University of Louisville, \$750,151—*Hancock, J., Henken, K., Henning, J., Husband, A., Hustedde, R., Miller Jr, T., Newman, M., Priddy, K., Scharko, P., Vincelli, P., Welch, M.*

Tat-Mediated Brain Endothelial Cell Dysfunction, National Institute of Neurological Disorders and Stroke, \$275,373—*Hennig, B.*

The Alltech-UK Animal Nutrigenomics Alliance, Alltech Biotechnology Inc., \$900,000—*Matthews, J.*

2007

Total—\$3,303,162

Assessment of Distillers Dried Grains with Solubles (DDGS) from Ethanol Production on Performance and Carcass Quality of Growing-Finishing Swine, National Pork Board, \$52,000—*Cromwell, G.*

CSREES Shared Faculty Member, Cooperative State Research Education and Extension, \$25,000—*Cromwell, G.*

Essential Amino Acid and Fatty Acid Studies in Cats, Hills Pet Nutrition Inc., \$224,614—*McLeod, K.*

Polycyclic Aromatic Hydrocarbon-Medicated STAT Signaling and Implications in Vascular Inflammation, American Heart Association, \$21,000—*Hennig, B., Oesterling, E.*

Microbial and Cell Assay, Tribo Flow Separations LLC, \$5,000—*Hicks, C.*

Nutrient Utilization in the Dog, Hills Pet Nutrition Inc., \$299,750—*Harmon, D., McLeod, K.*

Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$2,250,176—*Hennig, B., Gaetke, L.*

Rural Health Bioterrorism and Emergency Preparedness, University of Louisville, \$31,456—*Hancock, J., Henken, K., Henning, J., Husband, A., Hustedde, R., Miller, T., Newman, M., Priddy, K., Scharko, P., Vincelli, P., Welch, M.*

Sponsored Student Stipend, Alltech Biotechnology Inc., \$30,000—*Lawrence, L.*

Student Sponsorship Agreement, Alltech Biotechnology Inc., \$30,000—*Harmon, D.*

Tat-Mediated Brain Endothelial Cell Dysfunction, National Institute of Neurological Disorders and Stroke, \$266,666—*Hennig, B.*

U.S. DAIR e-XNET—A National Dairy Information and Communication Resource, University of Nebraska, \$67,500—*Amaral-Phillips, D., McAllister, A.*

2008

Total—\$ 5,482,563

Animal Health Sensing and Surveillance: Early Disease Detection for Food Supply and Public Health Protection, National Institute for Hometown Security, \$906,841—*Vanzant, E., Carter, C.*

Characteristics and Eating Quality of Bacon, Sausage, and Boneless Chops from Finishing Pigs Fed Medium and High Levels of Distillers Dried Grains with Solubles (DDGS), National Pork Board, \$46,161—*Cromwell, G., Lindemann, M., Rentfrow, G.*

DAIReXNET: A National Dairy Information and Communications Resource, University of Nebraska, \$15,000—*Amaral-Phillips, D., McAllister, A.J.*

Developing Nutrient Requirement and Feeding Guidelines, Department of Agriculture, \$5,000—*Cromwell, G.*

Differentiating Sarcoplasmic Proteomes of Color-Stable and Color-Labile Beef Muscles, Cooperative State Research Education and Extension, \$99,999—*Suman, S.*

Evaluation of Potential Alternatives to Methyl Bromide Fumigation in Dry Cured Ham and Aged Cheese Production, Mississippi State University, \$14,446—*Rentfrow, G.*

Formation and Reactivity of Carbon-Centered Radicals in Isolated Soy Proteins, Cooperative State Research Education and Extension, \$424,884—*Boatright, W.*

Impact of Fibrous Feedstuff on Marker Appearance and Disappearance and on Nutrient Digestibility in Finishing Pigs, Agricultural Research Service, \$20,000—*Lindemann, M.*

Implications of Caveolae in Tat Signaling and Integrity of Brain Endothelium, National Institute of Mental Health, \$366,250—*Hennig, B.*

Integrated Resource Management, Kentucky Beef Network, \$215,500—*Anderson, L., Bullock, K., Burris, W.*

Interactive Effects of Concentrate Starch and Soluble Fiber Levels on the Glucose and

Insulin Responses of Horses, Cooperative Research Farms, \$41,400—*Lawrence, L.*

Investigating the Use of Ginger Extract to Improve Tenderness of Beef Biceps Femoris, Kentucky Beef Council, \$20,000—*Suman, S., Rentfrow, G., Xiong, Y.*

Master Cattlemen Program, Kentucky Cattleman's Association, \$252,138—*Burris, W., Anderson, L., Henning, J.*

Master Grazer Educational Program Part II, Kentucky Beef Network, \$177,791—*Amaral-Phillips, D., Burris, W., Johns, J., Lacefield, G., Scharko, P., Smith, S.*

National Beef Cattle Evaluation Consortium, Cornell University, \$50,000—*Bullock, K.*

Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$1,941,662—*Hennig, B., Gaetke, L.*

Postdoctoral Fellow Sponsorship, Alltech Biotechnology Inc., \$103,425—*Pescatore, A.*

Role of Protein Oxidation in Water-Binding and Hydration of Meat, Cooperative State Research Education and Extension, \$293,654—*Xiong, Y.*

Rural Health Bioterrorism and Emergency Preparedness, University of Louisville, \$88,518—*Hancock, J., Henken, K., Henning, J., Husband, A., Hustedde, R., Miller, T., Newman, M., Priddy, K., Scharko, P., Vincelli, P., Welch, M.*

Sensory Evaluation of Prawns from Different Genetic Strains, Kentucky State University, \$15,000—*Xiong, Y.*

Student Sponsorship, Alltech Biotechnology Inc., \$26,500—*Cantor, A.*

Student Sponsorship, Alltech Biotechnology Inc., \$30,000—*Harmon, D.*

Student Sponsorship, Alltech Biotechnology Inc., \$30,000—*Lawrence, L.*

Student Sponsorship, Alltech Biotechnology Inc., \$32,400—*Pescatore, A., Quant, A.*

Tat-Mediated Brain Endothelial Cell Dysfunction, National Institute of Neurological Disorders and Stroke, \$265,994—*Hennig, B.*

2009

Total—\$5,216,813

DAIReXNET: A National Dairy Information and Communications Resource, University of Nebraska, \$15,000—*Amaral-Phillips, D.; McAllister, A.*

Development and Implementation of a High-Rise Swine Manure Composting Production Facility, Kentucky Governor's Office of Agricultural Policy, \$25,000—*Coffey, R.; Overhults, D.*

Elanco Animal Health Clinical Research Study Agreements—UKYDH0802 and UKYDH0803, Elanco Animal Health, \$34,191—*Harmon, D.; McLeod, K.*

Essential Amino Acid and Fatty Acid Studies in Cats, Hills Pet Nutrition Inc., \$224,614—*McLeod, K.*

Implications of Caveolae in Tat Signaling and Integrity of Brain Endothelium, National Institute of Mental Health, \$347,938—*Hennig, B.*

Methods of Restoring Carcass Firmness and Other Post-Harvest Traits in Finishing Pigs Fed a High Level of Distillers Dried Grains with Solubles (DDGS), National Pork Board, \$70,116—*Cromwell, G.; Lindemann, M.; Rentfrow, G.*

National Beef Cattle Evaluation Consortium, Cornell University, \$47,500—*Bullock, K.*

Nutrient Utilization in the Dog, Hills Pet Nutrition Inc., \$299,750—*Harmon, D.; McLeod, K.*

Nutrition and Superfund Chemical Toxicity Administrative Supplement, National Institute of Environmental Health Sciences, \$221,038—*Hennig, B.*

Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$1,999,906—*Hennig, B.; Gaetke, L.*

Nutrition and Superfund Chemical Toxicity Summer Supplement, National Institute of Environmental Health Sciences, \$153,110—*Hennig, B.*

Past, Present, and Future: The Nutritional Value of Oats in Horse Feeds, Prairie Oat Growers Association, \$29,554—*Lawrence, L.*

Student Sponsorship, Alltech Biotechnology Inc., \$57,466—*Cantor,*

A. Student Sponsorship, Alltech Biotechnology Inc., \$30,000—*Harmon, D.*

Student Sponsorship, Alltech Biotechnology Inc., \$30,000—*Lawrence, L.*

Student Sponsorship, Alltech Biotechnology Inc., \$32,400—*Pescatore, A.; Quant, A.*

Tat-Mediated Brain Endothelial Cell Dysfunction, National Institute of Neurological Disorders and Stroke, \$265,301—*Hennig, B.*

The Use of Natural Antimicrobials to Mitigate Biological Threat Agents in High-Risk Foods, National Institute for Hometown Security,

\$1,333,929—*Newman, M.; O’Leary, J.; Rentfrow, G.; Xiong, Y.*

2010

Total- \$4,198,693

An Integrated Approach to Improving Dairy Cow Fertility, University of Wisconsin, \$17,948—*Amaral-Phillips, D.*

Changes in Gastrointestinal Flora in Response to Antibiotic Therapy and Dietary Intervention, Kentucky Horse Racing Commission, \$53,305—*Lawrence, L.*

DAIReXNET: A National Dairy Information and Communications Resource, University of Nebraska, \$15,000—*Amaral-Phillips, D.; McAllister, A.*

Food Production Research and Development for Kentucky’s Small Food Processors, Kentucky Governor’s Office of Agricultural Policy, \$263,654—*Rentfrow, G.; Hu, W.; Newman, M.; Woods, T.*

Impact of Differing Forms of Monensin on Ruminant Volatile Fatty Acid Profiles in Steers Fed a Medium Concentrate Diet, Elanco Animal Health, \$24,611—*Harmon, D.; McLeod, K.*

Implications of Caveolae in Tat Signaling and Integrity of Brain Endothelium, National Institute of Mental Health, \$347,938—*Hennig, B.*

Improving Fertility during Heat Stress in Lactating Dairy Cows, University of Florida, \$60,000—*Amaral-Phillips, D.*

LAD and Monensin *in vitro* VFA Study, Elanco Animal Health, \$26,653—*Harmon, D.; McLeod, K.*

Lysine Requirements in Yearling Horses Determined Using Indicator Amino Acid Oxidation, National Institute of Food and Agriculture, \$149,707—*Urschel, K.*

Master Cattleman Program, Kentucky Cattlemen’s Association, \$190,200—*Burris, W.; Anderson, L.; Henning, J.*

National Beef Cattle Evaluation Consortium, Cornell University, \$50,000—*Bullock, K.*

Nutrigenomics Applied to Meat Science: Understanding the Impact of Alltech Antioxidant Nutrients on the Quality and Storage Stability of Chicken Meat, Alltech Biotechnology Inc., \$37,008—*Xiong, Y.*

Nutrition and Superfund Chemical Toxicity, National Institute of Environmental Health Sciences, \$2,640,121—*Hennig, B.; Gaetke, L.*

Post Doctoral Fellow Scholarship: Rossi, Alltech Biotechnology Inc., \$53,125—*Pescatore, A.*
Protein Metabolism in Old Horses: Effects of Inflammation and Glucocorticoid Excess, Morris Animal Foundation, \$108,000—*Urschel, K.*

Student Sponsorship, Alltech Biotechnology Inc.; \$30,000—*Harmon, D.*

Student Sponsorship, Alltech Biotechnology Inc.; \$30,000—*Lawrence, L.*

Student Sponsorship, Alltech Biotechnology Inc.; \$32,400—*Pescatore, A.*

The Effects of Creep Feeding Pre-Weaning Foals on Whole Body Protein Synthesis Determined Using Isotope Infusion and Stochastic Analysis, Waltham Centre for Pet Nutrition, \$19,915—*Urschel, K.*

The Use of Natural Antimicrobials to Mitigate Biological Threat Agents in High Risk Foods, National Institute for Hometown Security, \$49,068—*Newman, M.; O’Leary, J.; Rentfrow, G.; Xiong, Y.*

Animal and Food Sciences

Appendix IV

Annual Reports



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2008-2009 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences**

Degree: **BSA**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies										
Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	To recruit and subsequently educate highly qualified students through a balanced program of: a) general University Studies, designed to enhance understanding of the physical and cultural world to which the Animal Industries contribute; and b) specialized courses in Animal Sciences and related professional areas.	Maintain enrollment of majors in animal science consistent with the anticipated continuing shift of many students to the new Equine Initiative program.	Enrollment of Animal Science Majors for Fall 2009 is 210 students, down from 235 students in fall 2008 and 239 for 2007. However, numbers of students taught remain high due to continued growth in the EQSM major which is heavily based in animal sciences. A total of 114 EQSM students enrolled in fall of 2009. 1) We anticipate scholarships will be close to \$90,000 to students in the major as in past years from the College of Agriculture. The struggling economy will likely result in reduced scholarships next year. This does not reflect university awards and scholarships from sources outside the College of Ag. 2) We continue to encourage students to utilize the UK Career Center. (Ms. Charlotte Anderson addresses our ASC 205 class each semester.)	1. Review teaching, assessment and recruitment issues in faculty retreat in December. 2. Continue to encourage students to participate in student organizations and campus events such as Career Day. 3. Encourage students to apply for scholarships available through the college.	Instructional	Prepare Students	4	5	0	0
02	Provide modern teaching facilities, techniques, and a relevant curriculum to facilitate the development of highly qualified professionals.	Develop assessment criteria to be used beginning in 2010. Maintain teaching facility at University farm and classrooms in Garrigus building in face of increasing budgetary	Audio visual equipment has been maintained in all smart classrooms in Garrigus. An ad hoc committee to develop assessment criteria has prepared assessment goals and metrics to be approved by the faculty at our 2009 retreat.	1. Continue to encourage faculty to develop skills for use of electronic equipment including use of APEX for advising. 2. Continue to encourage faculty to participate in advising and to distribute advisees more evenly so that more faculty are broadly aware of undergraduate issues related to our curriculum. 3. Continue support of efforts to replace the dangerous 15 passenger vans with small buses designed for	Instructional	Prepare Students	3	4	9	0

challenges.

safer transport of students for field trips. Currently, class size in some courses is being limited to 11 students simply because that's the upper limit which can travel in a 12 passenger van.



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2008-2009 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences**

Degree: **Food Science BS**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit Mission: To educate undergraduate and graduate students in preparation for food-related careers in industry, academia, or government; 2) to conduct research that transforms commodities, ingredients, or foods to value-added products, and that improves food quality and safety; 3) to provide educational and training programs and information of value to the food industry, consumers, and general public.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Develop a highly visible undergraduate program in food science.	Seek to enhance IFT accredited BS degree program in food science; seek to increase the visibility of the food science program; increase scholarship fund by 5%; increase undergraduate enrollment by 5%; ensure quality student professional and social activities; and have 100% professional placement for student upon graduation.	Submission for renewal of Institute of Food Technologists (IFT) accreditation completed in 2009. To enhance food science program, new course FSC 430 (Sensory Evaluation) was developed and approved by department, college and university in 2009. The course will be taught the first time in the 2010 fall semester. Also, FSC 642 (Food Pigments) approved as graduate course in 2009. Writing requirement added to FCS 306 in 2009. Student assessment methods established & approved by IFT as part of accreditation in 2009. Recruitment efforts have added 7 more students (>30% increase over 2008) to food science this fall. Scholarship development continues on track with over \$7,000 added to principle amounts of Clair L Hicks and Food Science Scholarship funds which exceeded goal of 5%. All May graduates are now employed or in graduate school, meeting the 100% placement goal. A 2009 survey of past students was conducted to determine the success of our students and program assessment.	Student recruitment remains a top priority. Better recruiting aids were developed and given to Agriculture ambassadors to bring in more students to Foods Science. Work with the State Agriculture board to develop course materials for high school curriculum is starting to show some impact on recruiting efforts. Student faculty interactions remains a high priority to enhance retention. Students are encouraged to see their advisors regularly and participate in club activities.	Instructional	Enhance Stature	1	2	4	0
02	Enhance quality of teaching provided to students and effectiveness of student learning.	Program assessment procedures were implemented in 2009. Class assessment is conducted at the end of each semester. Student assessment are conducted in FSC 536 (capstone course). Post graduate assessments will be conducted periodically.	All instructor have attended at least one UK or professional teaching seminar or workshop during the 2009 academic year. Some freshman and all sophomores and juniors that want summer internships have been placed in paid food manufacturing or Research and Development related internships. All food science laboratories provide students with hands on experiences and internet opportunities. Most lab courses now charge a laboratory fee. These fees have augmented the quality of the material that can be presented in these laboratories. Acquisition of current processing equipment remains a problem within our processing laboratories.	Faculty interaction with students is at an all time high providing interaction at both the teaching and social levels. Students have responded to this interaction in positive ways. Food Science students are more engaged than in the past.	Instructional	Prepare Students	4	3	8	17



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2008-2009 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences**

Degree: **PhD**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Graduates will be capable of professional and/or scholarly contributions that advance the discipline.	*Number of graduate refereed publications or book chapters will be at least 35% of the number of students currently enrolled. *Number of oral or poster presentations at national or regional conferences will be at least 65% of the number of students enrolled.*20% of all doctoral students on assistantship will be supported by external grants.	Based on number, 30% of graduate students published papers in refereed journals. Based on the number of presentations, 64% gave presentations at scientific meetings. 86% of Ph.D. students receive support outside the department, i.e. extramural funding or fellowships.	Goals will be viewed to insure continued success of graduates.	Research	Prepare Students	6	7	0	0
02	Graduates will demonstrate academic, technical, and/or professional proficiency in their discipline.	60% of all graduate students will maintain a GPA of 3.6 or greater; 65% of Ph.D. graduates will obtain postdoctoral or faculty positions at major colleges or universities.	83% of graduate students are maintaining a 3.5 or better GPA and 86% have a 3.4 or better GPA. 100% of previous years students are employed or have received offers in their discipline.	This area will be reviewed and emphasized in departmental student selection.	Instructional	Prepare Students	6	7	0	0
03	Graduates will be successful in securing employment in their discipline.	Graduate School Doctoral Placement Survey: *80% of all doctoral graduates will have obtained employment or be in postdoctoral positions within six months of graduation. *25% of all doctoral graduates will have obtained tenure-track positions at a college or university. Master's Survey: *85% of Master's graduates will have obtained discipline-related employment within six months of graduation.	100% of Ph.D graduates were employed in post-doc or permanent positions within 6 months. 100% of M.S. graduates have discipline related jobs within 6 months of graduation.	Department will monitor to insure success of graduates.	Overall	Prepare Students	6	7	0	0



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM**Annual Review Report 2008-2009 APPROVED**Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Research)**Degree: **N/A**Data Entry **Robin Notton**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Increase departmental extramural research support.	Maintain research proposal submission at 1.5 per research FTE per year. Increase extramural funding by 5% each year (averaged over 3 years).	The number of proposals submitted increased from 15 (FY 07) to 22 (FY 08). The number of awards increased from 12 (FY 07) to 17 (FY 08). Total yearly awards averaged \$6.6 M (FY 06-08) compared to \$4.7 (FY 03-05), a 40% increase.	Proposal submissions will be at least 1.5 per research FTE per year. Average annual growth in extramural support in a 3-year span will be 5%	Research	Expand Research	14	0	0	0
02	Maintain a nationally recognized graduate research and training program.	Maintain graduate student enrollment near 50 students. Increase average student stipends by 10%.	Student numbers maintained at 47 and postdoctorals at 6 in FY 08.	Faculty are continually encouraged to offer competitive stipends and recruit high quality students.	Research	Expand Research	6	7	0	0
03	Enhance visibility of departmental research programs.	Maintain number of published articles at or above 2.5 per research FTE each year.	Number of published journal articles increased from 49 (FY 07) to 58 (FY 08), an 18% increase. Average number of publications per research FTE in FY 08 was 3.5.	Will maintain publication rate at least 2 papers per research FTE.	Research	Enhance Stature	15	12	9	0
04	Increase multi-disciplinary research activities.	Increase the number of formal collaborative research projects. Maintain number of visiting scholars at 5 per year.	Collaborative awards totaled \$1.8 M for FY 08. More than 50% of the publications were multi-authored from different disciplines. In FY 08, the department hosted 6 international visiting scholars.	Chair is working with College administration to identify additional collaborative relationships. Chair regularly advises faculty of potential opportunities.	Research	Expand Research	14	6	15	12



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2008-2009 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences (Extension)**

Degree: **N/A**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	a) Improve the competitive position and profitability of animal agriculture in Kentucky by educating producers and processors of animal products in the selection, understanding and application of technology suited to their specific resources. b) Provide extension education in animal agriculture technology for youth and young adults to fully develop the human capital of rural Kentucky. c) Improve the nutrition, diet and health of Kentucky citizens by assisting targeted clientele in applying technology to increase the quality, safety and economic value of foods of animal origin.	Evaluate: a) Methods of delivery of extension education programs. b) Level of extramural funding for extension education. c) Level of multi-state and interdisciplinary involvement in extension programming. d) Level of paraprofessional support for extension faculty. e) The quality and quantity of traditional extension publications on a quadrennial basis.	Twelve paraprofessionals are working in ASC extension programs with 7 FTE on extramural funds. Extension grants were \$1.85 million in FY09. Formal evaluation of extension presentations continue. Impact of extension programs continue to be assessed. Intensive training of producers was a result of Master Cattlemen, Advanced Master Cattlemen, Master Grazer, Horse College, Dairy Seminars, and Goat Food Safety Training Field Day and Seminars. ASC cooperates with several other departments and KSU in these programs. Developing a curriculum-based educational program for ANR agents and continue to provide in-service education for agents. Continued leadership in e-Xtension in beef, equine and dairy.	We will continue to evaluate programs to assure optimum use of resources. These assessments indicate ASC investments are having significant impact. Continue development of curriculum-based training. Level of extramural funding remains high.	Service	Quality of Life	8	12	13	17



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2007-2008 APPROVED

Area: Provost

College/Unit: College of Agriculture

Department: Animal Sciences

Degree: BSA

Data Entry Robin Notton

Approver Robert Harmon

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	To recruit and subsequently educate highly qualified students through a balanced program of: a) general University Studies, designed to enhance understanding of the physical and cultural world to which the Animal Industries contribute; and b) specialized courses in Animal Sciences and related professional areas.	Maintain enrollment of majors in animal science consistent with the anticipated shift of many students to the new Equine Initiative program.	Enrollment of Animal Science Majors for Fall 2008 is stable with 235 students compared with 239 for 2007. However, numbers of students taught are increasing dramatically. For example, ASC 101 has 6 sections and 169 students compared with 5 sections totaling 123 for fall 2007. This reflects an influx of students in the new equine science & management program which is heavily based in animal sciences. 1) We anticipate scholarships will be close to \$90,000 as in past years from the College of Agriculture. This does not reflect university awards and scholarships from sources outside the College of Ag. 2) We continue to encourage students to utilize the UK Career Center. (Dr. Julie Johnson addresses our ASC 205 class each semester.)	1. Review teaching, assessment and recruitment issues in faculty retreat in December. 2. Continue to encourage students to participate in student organizations and campus events such as Career Day. 3. Encourage students to apply for scholarships available through the college.	Instructional	Prepare Students	4	5	0	0
02	Provide modern teaching facilities, techniques, and a relevant curriculum to facilitate the development of highly qualified professionals.	Develop teaching facility at University farm and update at least one classroom in Garrigus building. Recruit at least one faculty member dedicated to the undergraduate program.	1. A wall display for feed samples has been installed outside room B-52 of Garrigus. 2. Mr. Kevin Veach has developed websites on which faculty may post video recordings of student presentations or other classroom materials.	1. Continue to encourage faculty to develop skills for use of electronic equipment including use of APEX for advising. 2. Continue to encourage faculty to participate in advising and to distribute advisees more evenly so that more faculty are broadly aware of undergraduate issues related to our curriculum. 3. Continue support of efforts to replace the dangerous 15 passenger vans with small buses designed for	Instructional	Prepare Students	3	4	9	0

				safer transport of students for field trips. Currently, class size in some courses is being limited to 11 students simply because that's the upper limit which can travel in a 12 passenger van.					
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UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2007-2008 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences**

Degree: **Food Science BS**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit To educate undergraduate and graduate students in preparation for food-related careers in industry, academia, or government; 2) to conduct research that transforms commodities, ingredients, or foods to value-added products, and that improves food quality and safety; 3) to provide educational and training programs and information of value to the food industry, consumers, and general public.

Unit Goals and Specific Strategies										
Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Develop a highly visible undergraduate program in food science.	Seek to enhance IFT accredited BS degree program in food science; seek to increase the visibility of the food science program; increase scholarship fund by 5%; increase undergraduate enrollment by 5%; ensure quality student professional and social activities; and have 100% professional placement for student upon graduation.	A new course FSC 430 (Sensory Evaluation) has been approved at college level. It is anticipated it will be approved on a University level by 2009 and scheduled to be taught for the first time in 2010. This course will fill a need in course content of undergraduate students and maintain department's accreditation with the Institute of Food Technologists (IFT). Kentucky science teachers have been sent information about food science from IFT which should aid in recruitment. Visibility of the food science program remains problematic. Enrollment goals were not met. Principle investments in the Bluegrass IFT and Clair L. Hicks scholarships increased by 3 and 20%, respectively, which exceeded the 5% goal. Undergraduate enrollment dropped to 14, thus enrollment targets were not met. The best undergraduate recruiting tools are the college ambassadors program and food science website. Graduate placement for May 2006 graduates was 100%. All starting salaries were greater than \$45,000.	Student recruitment remains a top priority. This year undeclared majors will be contacted to see if some of these students are interested in Food Science. Student faculty interactions which enhance student retention will remain a top priority.	Instructional	Enhance Stature	1	2	4	0
02	Enhance quality of teaching provided to students and effectiveness of student learning.		All instructors have attended at least one UK or professional teaching seminar or teaching workshop during the last year. Most interested Sophomores, and all interested Juniors and Seniors had paid internships at major food manufacturers or suppliers. All food science laboratories provide students with hands on laboratory experiences and internet opportunities. A number of lab courses now charge a lab fee. Acquisition of current processing equipment remains a problem within our processing laboratories.	Faculty interaction with students is at an all time high providing interaction at both the teaching and social levels. Students have responded to this interaction in positive ways. Food Science students are more engaged than in the past.	Instructional	Prepare Students	4	3	8	17



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2007-2008 APPROVED

Area: Provost

College/Unit: College of Agriculture

Department: Animal Sciences

Degree: PhD

Data Entry Robin Notton

Approver Robert Harmon

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Graduates will be capable of professional and/or scholarly contributions that advance the discipline.	*Number of graduate refereed publications or book chapters will be at least 35% of the number of students currently enrolled. *Number of oral or poster presentations at national or regional conferences will be at least 65% of the number of students enrolled. *20% of all doctoral students on assistantship will be supported by external grants.	Based on number, 46% of graduate students published papers in refereed journals. Based on the number of presentations, 146% gave presentations at scientific meetings. 86% of Ph.D. students receive support outside the department, i.e. extramural funding or fellowships.	Goals will be viewed to insure continued success of graduates.	Research	Prepare Students	6	7	0	0
02	Graduates will demonstrate academic, technical, and/or professional proficiency in their discipline.	60% of all graduate students will maintain a GPA of 3.6 or greater; 65% of Ph.D. graduates will obtain postdoctoral or faculty positions at major colleges or universities.	69% of graduate students are maintaining a 3.5 or better GPA and 77% have a 3.4 or better GPA while 65% of Ph.D. students have better than a 3.6 GPA. 100% of previous years students are employed or have received offers in their discipline.	This area will be reviewed and emphasized in departmental student selection.	Instructional	Prepare Students	6	7	0	0
03	Graduates will be successful in securing appropriate employment in their discipline.	Graduate School Doctoral Placement Survey: *80% of all doctoral graduates will have obtained employment or be in postdoctoral positions within six months of graduation. *25% of all doctoral graduates will have obtained tenure-track positions at a college or university. Master's Survey: *85% of Master's graduates will have obtained discipline-related employment within six months of graduation.	100% of Ph.D graduates were employed in post-doc or permanent positions within 6 months. 100% of M.S. graduates have discipline related jobs within 6 months of graduation.	Department will monitor to insure success of graduates.	Overall	Prepare Students	6	7	0	0



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM**Annual Review Report 2007-2008 APPROVED**Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Research)**Degree: **N/A**Data Entry **Robin Notton**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Increase departmental extramural research support.	Maintain research proposal submission at 1.5 per research FTE per year. Increase extramural funding by 5% each year (averaged over 3 years).	The number of proposals submitted increased from 15 (FY 07) to 22 (FY 08). The number of awards increased from 15 (FY 07) to 18 (FY 08). Total yearly awards averaged \$6.5 M (FY 05-08) compared to \$3.4 (FY 01-04), a 91% increase.	Proposal submissions will be at least 1.5 per research FTE per year. Average annual growth in extramural support in a 3-year span will be 5%	Research	Expand Research	14	0	0	0
02	Maintain a nationally recognized graduate research and training program.	Maintain graduate student enrollment near 50 students. Increase average student stipends by 10%.	Student numbers maintained at 47 and postdoctorals at 6 in 2008.	Faculty are continually encouraged to offer competitive stipends and recruit high quality students.	Research	Expand Research	6	7	0	0
03	Enhance visibility of departmental research programs.	Maintain number of published articles at or above 2.5 per research FTE each year.	Number of published journal articles increased from 31 (2006) to 51 (2007), a 65% increase.	Will maintain publication rate at least 2 papers per research FTE. For year 2007, it was 3.1 papers per FTE.	Research	Enhance Stature	15	12	9	0
04	Increase multi-disciplinary research activities.	Increase the number of formal collaborative research projects.	Collaborative awards totaled \$1.8 M for FY 08. More than 50% of the publications were multi-authored from different disciplines. In 2008, the department has hosted 6 international visiting scholars.	Chair is working with College administration to identify additional collaborative relationships. Chair regularly advises faculty of potential opportunities.	Research	Expand Research	14	6	15	12



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2007-2008 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences (Extension)**

Degree: **N/A**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	a) Improve the competitive position and profitability of animal agriculture in Kentucky by educating producers and processors of animal products in the selection, understanding and application of technology suited to their specific resources. b) Provide extension education in animal agriculture technology for youth and young adults to fully develop the human capital of rural Kentucky. c) Improve the nutrition, diet and health of Kentucky citizens by assisting targeted clientele in applying technology to increase the quality, safety and economic value of foods of animal origin.	Evaluate: a) Methods of delivery of extension education programs. b) Level of extramural funding for extension education. c) Level of multi-state and inter-disciplinary involvement in extension programming. d) Level of paraprofessional support for extension faculty. e) The quality and quantity of traditional extension publications on a quadrennial basis.	Twelve paraprofessionals are working in ASC extension programs with 7 FTE on extramural funds. Extension grants were \$1.67 million in FY08. Formal evaluation of extension presentations continue. Impact of extension programs continue to be assessed. Intensive training of producers was a result of Master Cattlemen, Advanced Master Cattlemen, Master Grazer, Horse College, Dairy Seminars, and Goat Field Day and Seminars. ASC cooperates with several other departments and KSU in these programs. Developing a curriculum-based educational program for ANR agents and continue to provide in-service education for agents. Continued leadership in e-Xtension in beef, equine and dairy.	We will continue to evaluate programs to assure optimum use of resources. These assessments indicate ASC investments are having significant impact. Continue development of curriculum-based training. Level of extramural funding remains high.	Service	Quality of Life	8	12	13	17



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STRATEGIC PLANNING AND REPORTING SYSTEM

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Annual Review Report 2006-2007 APPROVED

Area **Provost**
 Department **Animal Sciences**
 Data Entry **Robin Notton**
 Mission Last Modified By **Robert Harmon**

College/Unit **College of Agriculture**
 Degree **BSA**
 Approver **Robert Harmon**

Objective Last Modified By **Robert Harmon**

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:		
					UK Mission	UK Goal	UK Measures of Progress
01	To recruit and subsequently educate highly qualified students through a balanced program of: a) general University Studies, designed to enhance understanding of the physical and cultural world to which the Animal Industries contribute; and b) specialized courses in Animal Sciences and related professional areas.	Maintain enrollment of majors in animal science consistent with the anticipated shift of many students to the new Equine Science and Management program.	Fall 2007 enrollment appears to be down from 2006. Of the 289 students enrolled in ASC classes, 191 are ASC majors and 35 are enrolled in individualized curricula. Additional ASC majors may not be enrolled in any ASC course. 1) We anticipate scholarship awards to be approximately \$90,000, not including University awards to students. Many of our students participate in the Honors program. 2) Students appreciate the changes initiated in the new curriculum in fall 2005. For example, ASC 408G which had minimal enrollment for many years, has received strong reviews from students. 3) Students are encouraged to develop resumes and to utilize the University Career Center. 12 faculty are currently advising students. Internships, experiential education, and international experiences are encouraged. The curriculum	1. Review teaching, assessment and recruitment issues in faculty retreat in December. 2. Continue to encourage students to participate in student organizations and campus events such as Career Day. 3. Encourage students to apply for scholarships available through the college.	Instructional	2. Prepare Students	4 5 0 0

committee is evaluating the existing curriculum and an assessment committee has initiated development of a strategy for curricular assessment.

02 Provide modern teaching facilities, techniques, and a relevant curriculum to facilitate the development of highly qualified professionals.

Develop teaching facility at University farm and update at least one classroom in Garrigus Building. Recruit at least one faculty member dedicated to the undergraduate program.

1. A new teaching facility at the Equine Unit has been completed and has enhanced the teaching program. 2. A wall display for feed samples has been installed outside room B-52 of Garrigus. 3. Mr. Kevin Veach has developed websites on which faculty may post video recordings of student presentations or other classroom materials. 4. Two new faculty have been hired in 2007; one with 70% and the other with 25% teaching appointment.

1. Continue to encourage faculty to develop skills for use of electronic equipment. 2. Continue to encourage faculty to participate in advising and to distribute advisees more evenly so that more faculty are broadly aware of undergraduate issues related to our curriculum. 3. Support efforts to replace the dangerous 15 passenger vans with small buses designed for safer transport of students for field trips. Currently class size in some courses is being limited to 11 students simply because that's the upper limit which can travel in a 12 passenger van.

Instructional 2. 3 4 9 0
Prepare Students

2 objective(s) found.

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Annual Review Report 2006-2007 APPROVED

Area	Provost	College/Unit	College of Agriculture
Department	Animal Sciences	Degree	Food Science BS
Data Entry	Robin Notton	Approver	Robert Harmon
Mission Last Modified By	Robert Harmon	Objective Last Modified By	Robert Harmon

Unit Mission
 To educate undergraduate and graduate students in preparation for food-related careers in industry, academia, or government; 2) to conduct research that transforms commodities, ingredients, or foods to value-added products, and that improves food quality and safety; 3) to provide educational and training programs and information of value to the food industry, consumers, and general public.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:			
					UK Mission	UK Goal	UK Measures of Progress	
01	Develop a highly visible undergraduate program in food science.	Seek to enhance IFT accredited BS degree program in food science; seek to increase the visibility of the food science program; increase scholarship fund by 5%; increase undergraduate enrollment by 5%; ensure quality student professional and social activities; and have 100% professional placement for student upon graduation.	The Food Science faculty has developed the course content for FSC 430 (sensory evaluation). This course is a key course to maintain accreditation with the Institute of Food Technologist (IFT). This course has been approved at the department level and is currently being considered for approval at the college level. Visibility of the Food Science program remains problematic. However, the IFT produced guidance information that was disseminated to all Kentucky high schools in 2007, which may be helpful. Scholarship funding increased by approximately \$12,000 in 2007, most of which was derived by the Bluegrass section of IFT. This funding met the goal of 2006. Graduate placement for 2007 remains at 100%. Average starting salaries exceeded \$50,000/year. The best student recruitment tool is the college's ambassador program and the Food Science web site.	Student recruitment remains a top priority. Student retention will hopefully improve as student/faculty interactions increase.	Instructional	1.	1 2 4 0	Enhance Stature
02	Enhance quality of teaching provided to		All instructors have attended at least one training session on advising, teaching, or seminar about teaching. Laboratory fees	Faculty interaction with students is at an all time high	Instructional	2.	4 3 8 17	Prepare Students

students and effectiveness of student learning.

have been assessed for some courses to enhance and maintain the quality of instruction in these courses. All Sophomores and Juniors that wanted an internship were able to be placed in an industrial internship. A few Freshman and Seniors also did internships. Acquisition of equipment for the teaching of processing and analytical laboratories remains a problem. More monies need to be found that can be used to purchase this type of equipment.

providing interaction at both the teaching and social levels. Students have responded to this interaction in positive ways. Food Science students are more engaged than in the past.

2 objective(s) found.

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Annual Review Report 2006-2007 APPROVED

Area **Provost**
 Department **Animal Sciences**
 Data Entry **Robin Notton**
 Mission Last Modified By **Robert Harmon**

College/Unit **College of Agriculture**
 Degree **PhD**
 Approver **Robert Harmon**
 Objective Last Modified By **Robert Harmon**

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:		
					UK Mission	UK Goal	UK Measures of Progress
01	Graduates will be capable of professional and/or scholarly contributions that advance the discipline.	*Number of graduate refereed publications or book chapters will be at least 35% of the number of students currently enrolled. *Number of oral or poster presentations at national or regional conferences will be at least 65% of the number of students enrolled. *20% of all doctoral students on assistantship will be supported by external grants.	49% of graduate students published papers in refereed journals. Based on the number of presentations, 97% gave presentations at scientific meetings. 86% of Ph.D. students receive support outside the department, i.e. extramural funding or fellowships.	Goals will be viewed to insure continued success of graduates.	Research	2. Prepare Students	6 7 0 0
02	Graduates will demonstrate academic, technical, and/or professional proficiency in their discipline.	60% of all graduate students will maintain a GPA of 3.6 or greater; 65% of Ph.D. graduates will obtain postdoctoral or faculty positions at major colleges or universities.	57% of graduate students are maintaining a 3.5 or better GPA and 67% have a 3.4 or better GPA while 71% of Ph.D. students have better than a 3.5 GPA. 100% of previous years students are employed or have received offers in their discipline.	This area will be reviewed and emphasized in departmental student selection.	Instructional	2. Prepare Students	6 7 0 0
03	Graduates will be successful in securing appropriate employment in	Graduate School Doctoral Placement Survey: *80% of all doctoral graduates will have obtained employment or be in postdoctoral positions within six months of graduation. *25% of all	100% of Ph.D graduates were employed in post-doc or permanent positions within 6 months. 100% of M.S. graduates have	Department will monitor to insure success of graduates.	Overall	2. Prepare Students	6 7 0 0

their discipline. doctoral graduates will have obtained discipline related jobs within
tenure-track positions at a college or 6 months of graduation.
university. Master's Survey: *85% of
Master's graduates will have obtained
discipline-related employment within
six months of graduation.

3 objective(s) found.

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UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2006-2007 APPROVED

Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Research)**Degree: **N/A**Data Entry **Robin Notton**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable

Mission: animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Increase departmental extramural research support.	Maintain research proposal submission at 1.5 per research FTE per year. Increase extramural funding by 5% each year (averaged over 3 years).	Total awards increased from 8.6 M (FY 06) to 10.1 M (FY 07).	Proposal submissions will be at least 1.5 per research FTE per year. Annual growth in extramural support will be 5% (average) over 3 years.	Research	3. Expand Research	14	0	0	0
02	Maintain a nationally recognized graduate research and training program.	Maintain graduate student enrollment near 50 students. Increase average student stipends by 10%.	Student numbers averaged 44 for 2004-2007 period.	Faculty are continually encouraged to offer competitive stipends. We continue to emphasize recruitment of high quality students.	Research	3. Expand Research	6	7	0	0
03	Enhance visibility of departmental research programs.	Maintain number of published articles at or above 2.5 per research FTE each year.	Published articles averaged 2.3 for 2004-2006 period.	Will maintain publication rate of at least 2 papers per research faculty FTE.	Research	1. Enhance Stature	15	12	9	0
04	Increase multi-disciplinary research activities.	Increase the number of formal collaborative research projects.	Collaborative awards increased from 4.1 M (FY 06) to 6.0 M (FY 07).	Chair is working with College administration to identify additional collaborative relationships. Chair regularly advises faculty of potential opportunities.	Research	3. Expand Research	14	6	15	12



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2006-2007 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences (Extension)**

Degree: **N/A**

Data Entry **Robin Notton**

Approver **Robert Harmon**

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	a) Improve the competitive position and profitability of animal agriculture in Kentucky by educating producers and processors of animal products in the selection, understanding and application of technology suited to their specific resources. b) Provide extension education in animal agriculture technology for youth and young adults to fully develop the human capital of rural Kentucky. c) Improve the nutrition, diet and health of Kentucky citizens by assisting targeted clientele in applying technology to increase the quality, safety and economic value of foods of animal origin.	Evaluate: a) Methods of delivery of extension education programs. b) Level of extramural funding for extension education. c) Level of multi-state and interdisciplinary involvement in extension programming. d) Level of paraprofessional support for extension faculty. e) The quality and quantity of traditional extension publications on a quadrennial basis.	8.5 paraprofessionals are working in ASC extension programs with a 5.5 FTE on extramural funds. Extension grants were \$443,684 in FY07. Formal evaluation of extension presentations continue. Impact of extension programs continue to be assessed. Intensive training of producers was a result of Master Cattlemen, Advanced Master Cattlemen, Master Grazer, Horse College, Dairy Seminars, and Goat Field Day and Seminars. ASC cooperates with several other departments and KSU in these programs. Developing a curriculum-based educational program for ANR agents and continue to provide in-service education for agents. Developed basic beef training. Continued leadership in e-Xtension in equine and dairy.	We will continue to evaluate programs to assure optimum use of resources. These assessments indicate ASC investments are having significant impact. Continue development of curriculum-based training. Level of extramural funding remains high.	Service	5. Quality of Life	8	12	13	17



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

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Annual Review Report 2005-2006 APPROVED

Area **Provost**
 Department **Animal Sciences**
 Data Entry **Charles Guinnup**
 Mission Last Modified By **Robert Harmon**

College/Unit **College of Agriculture**
 Degree **BSA**
 Approver **Robert Harmon**

Objective Last Modified By **Charles Guinnup**

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:		
					UK Mission	UK Goal	UK Measures of Progress
01	To recruit and subsequently educate highly qualified students through a balanced program of: a) general University Studies, designed to enhance understanding of the physical and cultural world to which the Animal Industries contribute; and b) specialized courses in Animal Sciences and related professional areas.	1) Maintain enrollment of majors in animal science consistent with the anticipated shift of many students to the new Equine Initiative program.	Enrollment of Animal Science Majors for Fall 2006 was 276, down 7% from fall 2005. 1) Scholarships (93 totaling \$89,900) from the College of Agriculture were awarded to 83 students in Fall 2005. This is 43% more students and 37% more dollars than in 2005. These figures do not include awards from University sources other than the College of Agriculture. 2) Students appear to appreciate changes initiated in the new curriculum in fall 2005. We have increased enrollment in courses such as ASC 408G which had minimal enrollment for many years. 3) We continue to encourage students to develop resumes and to utilize the University Career Center. Twelve faculty are currently involved in advising students. Internships and experiential education are encouraged through participation in ASC 399 or (EXP 396).	1. Review teaching, assessment and recruitment issues in faculty retreat in January. 2. Continue to encourage students to participate in student organizations and campus events such as Career Day. 3. Encourage students to apply for scholarships available through the college.	Instructional	2. Outstanding Students	2.2 2.4 2.6 0

02 Provide modern teaching facilities, techniques, and a relevant curriculum to facilitate the development of highly qualified professionals.	Develop teaching facility at the University farm and update at least one classroom in Garrigus Building. Recruit at least one faculty member dedicated to the undergraduate program.	International experiences are encouraged and Dr. Bill Silvia will lead the College tour to China this summer. 1. Plans for a specific teaching facility at the Animal Research Center remain on hold, but we are optimistic that a facility will be incorporated in plans for the equine initiative. 2. A wall display for feed samples has been constructed and will be installed soon outside room B-52 of Garrigus.	1. Continue to encourage faculty to develop skills for use of electronic equipment. 2. Continue to encourage faculty to participate in advising and to distribute advisees more evenly so that more faculty are broadly aware of undergraduate issues related to our curriculum. 3. Support efforts to replace the dangerous 15 passenger vans with small buses designed for safer transport of students for field trips.	Instructional	2. Outstanding Students	2.2 2.4 2.6 0
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Annual Review Report 2005-2006 APPROVED

Area	Provost	College/Unit	College of Agriculture
Department	Animal Sciences	Degree	Food Science BS
Data Entry	Charles Guinnup	Approver	Robert Harmon
Mission Last Modified By	Robert Harmon	Objective Last Modified By	Robert Harmon

Unit Mission To educate undergraduate and graduate students in preparation for food-related careers in industry, academia, or government; 2) to conduct research that transforms commodities, ingredients, or foods to value-added products, and that improves food quality and safety; 3) to provide educational and training programs and information of value to the food industry, consumers, and general public.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measures of Progress			
01	Develop a highly visible undergraduate program in food science.	Seek to enhance IFT accredited BS degree program in food science; seek to increase the visibility of the food science program, Increase scholarship fund by 5%; increase undergraduate enrollment by 5%; ensure quality student professional and social activities; and have 100% professional placement for student upon graduation.	Two assistant professors were hired in 2006 which covered the critical teaching needs of core courses within the Animal and Food Sciences disciplines. Also, with the hiring of Dr. Suman one critical undergraduate course will be developed which will enhance our ability to meet accreditation requirements. The Bluegrass, C. L. Hicks, William Moody, and James Kemp scholarship funds had a total increase in principal of greater than \$12,000 in 2005 and 2006. This overall increase in scholarship principle was approximately 5%. Current undergraduate enrollment dropped to 28, thus enrollment targets were not met. Graduate placement for May 2006 graduates was 100%. Average starting salary was greater than \$40,000. The best undergraduate recruiting tools are the college ambassadors program and the food science web site.	Student recruitment remains a top priority and student faculty interactions will be at an all time high with the two new faculty on staff. Student retention will remain a top priority.	Instructional	2. Outstanding Students	2.2	2.4	2.6	0

02	Enhance quality of teaching provided to students and effectiveness of student learning.	Instructors will attend campus and national teaching-related workshops (at least one per faculty); instructors will develop teaching portfolios that will be critically evaluated by peers; the internet will be an essential resource for teaching and learning; computers and internet access will be readily available to students for course studies; two-way communication, critical thinking, and team approach will be emphasized; hands-on experience through field trips (1-3/class), lab exercises, internships will be incorporated and emphasized.	All instructors have attended at least one UK or professional teaching seminar or teaching workshop during the last two years. Most interested Sophomores, and all interested Juniors and Seniors had paid internships at major food manufacturers or suppliers. All food science laboratories provide students with hands on laboratory experiences and internet opportunities. Acquisition of current processing equipment remains a problem within our processing laboratories.	Hands-on activities prove to be an effective means by which students learn, hence, they will continue to be incorporated in teaching and training; faculty will maintain a closer contact with their respective student advisees to provide maximum help with course work and other learning activities; greater faculty-student interaction has been stressed and positively received.	Instructional	2.	2.2	2.4	2.6	0
						Outstanding Students				

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Annual Review Report 2005-2006 APPROVED

Area **Provost**
 Department **Animal Sciences**
 Data Entry **Charles Guinnup**
 Mission Last Modified By **Robert Harmon**

College/Unit **College of Agriculture**
 Degree **PhD**
 Approver **Robert Harmon**

Objective Last Modified By **Robert Harmon**

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measures of Progress			
01	Graduates will be capable of professional and/or scholarly contributions that advance the discipline.	*Number of graduate refereed publications or book chapters will be at least 35% of the number of students currently enrolled. *Number of oral or poster presentations at national or regional conferences will be at least 65% of the number of students enrolled.*20% of all doctoral students on assistantship will be supported by external grants.	42.5% of graduate students published papers in refereed journals. Based on the number of presentations, 118% gave presentations at scientific meetings. 80% of Ph.D. students receive support outside the department, i.e. soft money or fellowships.	Goals will be viewed to insure continued success of graduates.	Research	4. New Knowledge	4.1	3.2	0	0
03	Graduates will demonstrate academic, technical, and/or professional proficiency in their discipline.	60% of all graduate students will maintain a GPA of 3.6 or greater; 65% of Ph.D. graduates will obtain postdoctoral or faculty positions at major colleges or universities.	56% of students are maintaining a 3.5 or better GPA and 78% have a 3.4 or better GPA while 77% of Ph.D. students have better than a 3.5 GPA. 100% of previous years students are employed or have received offers in their discipline.	This area will be reviewed and emphasized in departmental student selection.	Instructional	2. Outstanding Students	4.3	0	0	0
04	Graduates will be successful in securing appropriate employment in	Graduate School Doctoral Placement Survey: *80% of all doctoral graduates will have obtained employment or be in postdoctoral positions within six	100% of Ph.D graduates were employed in post-doc or permanent positions within 6 months. 100% of M.S. graduates have	Department will monitor to insure success of graduates.	Overall	0. Other	4.3	0	0	0

their discipline. months of graduation. *25% of all discipline related jobs
doctoral graduates will have within 6 months of
obtained tenure-track positions at a graduation.
college or university. Master's
Survey: *85% of Master's graduates
will have obtained discipline-related
employment within six months of
graduation.

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UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM**Annual Review Report 2005-2006 APPROVED**Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Research)**Degree: **N/A**Data Entry **Charles Guinnup**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Increase departmental extramural research support.	Maintain research proposal submission at 1.5 per research FTE per year. Increase extramural funding by 5% each year (averaged over 3 years).	Direct awards increased from \$3.4 M (FY05) to \$4.5 M (FY06)	Proposal submissions will be at least 1.5 per research FTE per year. Annual growth in extramural support will be 5% (average) over 3 years.	Research	4. New Knowledge	4.1	6.3	0	0
02	Maintain a nationally recognized graduate research and training program.	Maintain graduate student enrollment near 50 students. Increase average student stipends by 10%.	Student numbers averaged 47 for 2003-2006 period.	Faculty are continually encouraged to offer competitive salaries. We continue to emphasize recruitment of high quality students.	Research	4. New Knowledge	4.3	4.4	0	0
03	Enhance visibility of departmental research programs.	Maintain number published articles at or above 2.5 per research FTE each year.	Published articles averaged 2.5 for 2003-2005 period.	Will maintain publication rate of at least 2 papers per research faculty FTE.	Research	1. National Prominence	1.1	3.4	3.2	0
04	Increase multi-disciplinary research activities.	Increase the number of formal collaborative research projects.	Collaborative awards increased from \$2.8 M (FY05) to \$4.1 M (FY06).	Chair is working with College administration to identify additional collaborative relationships. Chair regularly advises faculty of potential.	Research	4. New Knowledge	4.1	6.3	0	0



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

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Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences (Extension)**

Degree: **N/A**

Data Entry **Charles Guinnup**

Approver **Robert Harmon**

Unit Mission: The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	a) Improve the competitive position and profitability of animal agriculture in KY by educating producers and processors of animal products in the selection, understanding and application of technology suited to their specific resources. b) Provide extension education in animal agriculture technology for youth and young adults to fully develop the human capital of rural Kentucky. c) Improve the nutrition, diet and health of KY citizens by assisting targeted clientele in applying technology to increase the quality, safety and economic value of foods of animal origin.	Evaluate: a) methods of delivery of extension education programs. b) Level of extramural funding for extension education. c) Level of multi-state and inter-disciplinary involvement in extension programming. d) Level of paraprofessional support for extension faculty. e) The quality and quantity of traditional extension publications on a quadrennial basis.	8.5 paraprofessionals are working in ASC extension programs with 5.5 FTE on extramural funds. Extension grants were \$809,520 in FY06. Formal evaluation of extension presentations has been implemented. Impact of extension programs continue to be assessed. Intensive training of producers was a result of Master Cattleman, Advanced Master Cattleman, Master Grazer, Horse College, Dairy Seminars, and Goat Field Day and Seminars. ASC cooperates with several other departments and KSU in these programs. Developing a curriculum-based educational program for ANR agents and continue to provide in-service education for agents.	We will continue to evaluate programs to assure optimum use of resources. These assessments indicate ASC investments are having significant impact. Continue development of curriculum-based training. Level of Extramural funding continues to increase.	Service	0. Other	6.1	6.1	6.6	1.1



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Area **Provost**
 Department **Animal Sciences**
 Data Entry **Charles Guinnup**
 Mission Last Modified By **Robert Harmon**

College/Unit **College of Agriculture**
 Degree **BSA**
 Approver **Robert Harmon**

Objective Last Modified By **Robert Harmon**

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measures of Progress			
01	To recruit and subsequently educate highly qualified students through a balanced program of: a) general University Studies, designed to enhance understanding of the physical and cultural world to which the Animal Industries contribute; and b) specialized courses in Animal Sciences and related professional areas.	1) Increase undergraduate enrollment by 10% 2) Increase departmental scholarship dollars by 10%. 3) Annually evaluate undergraduate curriculum to assure undergraduates are exposed to relevant material. 4) Provide guidance for all undergraduates seeking part-time and/or full-time employment	Enrollment of Animal Science Majors for Fall 2005 was 297, up 12% from 264 for Fall 2004. 58 students received a total of 73 scholarships worth \$65,700 from the College of Agriculture in 2005; Number of students is unchanged, but scholarship amount is 83% of 2004. These figures do not identify scholarships from University sources other than the College of Agriculture. Student's are encouraged to participate in Career Days, internships and experiential education. International experiences include Ireland, South Africa, Australia.	Review teaching, assessment and recruitment issues in faculty retreat in January. Encourage students to participate in student organizations and campus events such as Career Day. Encourage students to apply for scholarships available through the college.	Instructional	2.	2.2	2.4	2.6	0
02	Provide modern teaching facilities, techniques, and a relevant curriculum to facilitate the development of highly qualified professionals.	Develop teaching facility at the University farm and update at least one classroom in Garrigus Building. Recruit at least one faculty member dedicated to the undergraduate	Plans for a specific teaching facility at the Animal Research Center remain on hold. Room B-52 (the largest lecture room in Garrigus now has electronic equipment (computer, Elmo video/overhead projection, and video projection equipment). However, it still lacks internet access. Personal Response system	Encourage faculty to develop skills for use of electronic equipment. Continue to encourage faculty to participate in advising and to distribute advisees	Instructional	2.	2.2	2.4	2.6	0

program.

which allows instantaneous student more evenly.
feedback to quizzes and survey is Support efforts to
being installed in Garrigus 108 and replace 15
109, from a grant from C.E. passenger vans
Barnhart fund. The new with small busses.
curriculum has been approved by
the Unviversity Senate and was
implemented Fall 2005. The
curriculum addresses the
decreasing enrollments in
production courses and combines
some existing courses and adds
new subject matter. We continue to
encourage students to develop
resumes and to utilize the
University Career Center. Fourteen
faculty are currently involved in
advising students.

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Area	Provost	College/Unit	College of Agriculture
Department	Animal Sciences	Degree	Food Science BS
Data Entry	Charles Guinnup	Approver	Robert Harmon
Mission Last Modified By	Robert Harmon	Objective Last Modified By	Robert Harmon

Unit Mission
 To educate undergraduate and graduate students in preparation for food-related careers in industry, academia, or government; 2) to conduct research that transforms commodities, ingredients, or foods to value-added products, and that improves food quality and safety; 3) to provide educational and training programs and information of value to the food industry, consumers, and general public.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:		
					UK Mission	UK Goal	UK Measures of Progress
01	Develop a highly visible undergraduate program in food science.	Seek to enhance IFT accredited BS degree program in food science; seek to increase the visibility of the food science program, Increase scholarship fund by 5%; increase undergraduate enrolment by 5%; ensure quality student professional and social activities; and have 100% professional placement for student upon graduation.	A single accredited food science program now exist on campus. The visibility of food science increased when the department became "Dept. of Animal and Food Sci". The Moody and Bluegrass IFT scholarships now support 5 students and the new Clair L. Hicks scholarship was initiated in 2005. Undergraduate enrollment remained steady at 34 students. Five students have received National IFT scholarships in 2005. Graduate placement for May 2005 students was 100%. Average starting salaries for BS students was greater than \$40,000. Active student recruitment continues through Ag Roundup, Encounter Days, and via student Ambassadors who visit high schools. The Food Science web page remains a valuable recruiting tool.	Student recruitment remains a top priority; faculty-student interactions will be strengthened, e.g., through Food Science Club activities, to ensure student retention; an initiative to form a food industry advisory board meets annually.	Instructional	2.	2.2 2.4 2.6 0
02	Enhance quality of	Instructors will attend campus and national	All interested junior/senior students had summer	Hands-on activities prove to be an	Instructional	2.	2.2 2.4 2.6 0

teaching provided to students and effectiveness of student learning.	teaching-related workshops (at least one per faculty); instructors will develop teaching portfolios that will be critically evaluated by peers; the internet will be an essential resource for teaching and learning; computers and internet access will be readily available to students for course studies; two-way communication, critical thinking, and team approach will be emphasized; hands-on experience through field trips (1-3/class), lab exercises, internships will be incorporated and emphasized.	internships at various food companies; all the undergraduate level food science courses incorporated hands-on laboratory exercises and internet opportunities; Food Science (FSC434G), Food Analysis (FSC536) and Food Lipids (FSC640) courses were published on Web pages; several undergraduate students were hired by faculty advisors to work in the lab to gain research experiences; Fall 2004 the second study tour was held.	effective means by which students learn, hence, they will continue to be incorporated in teaching and training; faculty will maintain a closer contact with their respective student advisees to provide maximum help with course work and other learning activities; greater faculty-student interaction has been stressed and positively received.	Students
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Annual Review Report 2004-2005 APPROVED

Area	Provost	College/Unit	College of Agriculture
Department	Animal Sciences	Degree	PhD
Data Entry	Charles Guinnup	Approver	Robert Harmon
Mission Last Modified By	Robert Harmon	Objective Last Modified By	Robert Harmon

Unit Mission The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

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Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measures of Progress			
01	Graduates will be capable of professional and/or scholarly contributions that advance the discipline.	*Number of graduate refereed publications or book chapters will be at least 35% of the number of students currently enrolled. *Number of oral or poster presentations at national or regional conferences will be at least 65% of the number of students enrolled.	Currently 89% of students on GRA are at least partially supported on external grants. 25% of grad students published papers in refereed journals in 2004. 74% gave presentations in scientific meetings.	Goals will be reviewed to insure continued success of graduates.	Research	4. New Knowledge	4.1	4.3	0	0
03	Graduates will demonstrate academic, technical, and/or professional proficiency in their discipline.	60% of all graduate students will maintain a GPA of 3.6 or greater; 65% of Ph.D. graduates will obtain postdoctoral or faculty positions at major colleges or universities.	Overall average GPA is > 3.5, 51% of students have GPA > 3.6 and 36% have GPA > 3.7. 100% of Ph.D. student graduates are employed or in post doc status.	This area will be reviewed and emphasized in departmental student selection.	Instructional	2. Outstanding Students	4.3	0	0	0
04	Graduates will be successful in securing appropriate employment in their discipline.	Graduate School Doctoral Placement Survey: *80% of all doctoral graduates will have obtained employment or be in postdoctoral positions within six months of graduation. *25% of all doctoral graduates will have obtained tenure-track positions at a college or university. Master's Survey: *85% of Master's graduates	100% of Ph.D. graduates were employed in postdoc or permanent position within six months. None in the past year accepted a university position. 100% of M.S. graduates have discipline related jobs within 6 months of graduation.	Department will monitor to insure success of graduates.	Overall	0. Other	4.3	0	0	0

will have obtained discipline-related employment within six months of graduation.

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UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM**Annual Review Report 2004-2005 APPROVED**Area: **Provost**College/Unit: **College of Agriculture**Department: **Animal Sciences (Research)**Degree: **N/A**Data Entry **Robert Harmon**Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	Increase departmental extramural research support.	Maintain research proposal submission at 1.5 per research FTE per year. Increase extramural funding by 5% each year (averaged over 3 years).	Direct awards increased from \$2.1 million (FY04) to \$3.4 million (FY05).	Proposal submissions will be at least 1.5 per research FTE per year. Annual growth in extramural support will be 5% (average) over 3 years.	Research	4. New Knowledge	4.1	6.3	0	0
02	Maintain a nationally recognized graduate research and training program.	Maintain graduate student enrollment near 50 students. Increase average student stipends by 10%.	Student numbers decreased from 56 to 41 from 2003 to 2004.	Faculty are continually encouraged to offer competitive salaries. We continue to emphasize recruitment of high quality students.	Research	4. New Knowledge	4.3	4.4	0	0
03	Enhance visibility of departmental research programs.	Maintain number published articles at or above 2.5 per research FTE each year.	Published articles increased 2% from 2003 to 2004.	Will maintain publication rate of at least 2 papers per research faculty FTE.	Research	1. National Prominence	1.1	3.4	3.2	0
04	Increase multi-disciplinary research activities.	Increase the number of formal collaborative research projects.	Collaborative awards increased from \$2.4 million (FY04) to \$2.8 million (FY05).	Chair is working with College administration to identify additional collaborative relationships. Chair regularly advises faculty of potential relationships.	Research	4. New Knowledge	4.1	6.3	0	0



UNIVERSITY OF KENTUCKY

STRATEGIC PLANNING AND REPORTING SYSTEM

Annual Review Report 2004-2005 APPROVED

Area: **Provost**

College/Unit: **College of Agriculture**

Department: **Animal Sciences (Extension)**

Degree: **N/A**

Data Entry **Charles Guinnup**

Approver **Robert Harmon**

Unit The mission of the Department of Animal Sciences is to: 1. develop, improve, and promote sustainable

Mission: animal production systems; 2. improve the health and well-being of animals in food and non-food production systems; 3. enhance the quality, utilization and safety of food products; 4. facilitate life-long learning through creative research and discovery, challenging and encompassing education, and effective technology transfer.

Unit Goals and Specific Strategies

Obj. #	Unit Goals and Specific Strategies	Assessment Methods, Criteria and Timelines	Results of Assessments	Use of Results to Improve	Relationship to UK Strategic Plan:					
					UK Mission	UK Goal	UK Measure of Progress			
01	a) Improve the competitive position and profitability of animal agriculture in KY by educating producers and processors of animal products in the selection, understanding and application of technology suited to their specific resources. b) Provide extension education in animal agriculture technology for youth and young adults to fully develop the human capital of rural Kentucky. c) Improve the nutrition, diet and health of KY citizens by assisting targeted clientele in applying technology to increase the quality, safety and economic value of foods of animal origin.	Evaluate: a) methods of delivery of extension education programs. b) Level of extramural funding for extension education. c) Level of multi-state and inter-disciplinary involvement in extension programming. d) Level of paraprofessional support for extension faculty. e) The quality and quantity of traditional extension publications on a quadrennial basis.	6.5 paraprofessionals are working in ASC extension programs with 3.5 FTE on extramural funds. Extension grants were \$547,010 in FY05. Formal evaluation of extension presentations has been implemented. Impact of extension programs continue to be assessed. Intensive training of producers was a result of Master Cattlemen, Horse College, Dairy Seminars, and Goat Field Day and Seminars. ASC cooperates with several other departments and KSU in these programs. Developing a curriculum-based educational program for ANR agents. Lead role in Southern Region beef resource website through extension.	We will continue to evaluate programs to assure optimum use of resources. These assessments indicate ASC investments are having significant impact. Continue development of curriculum-based training.	Service	6. Quality of Life	6.1	6.6	1.1	0

Animal and Food Sciences

Appendix V

Undergraduate Program



Animal Sciences

College of Agriculture
and School of Human
Environmental Sciences

Animals have many important roles in human societies including the provision of food and fiber, draft power, recreational and athletic activities, and companionship. In addition, animals and their interactions with humans have environmental consequences. Processing, preservation, and quality of animal-derived foods significantly affect human health and economics. Animal Sciences involves studying and applying the basic principles of nutrition, reproduction, and genetics to the production and management of animals including horses, dairy and beef cattle, sheep, swine, poultry, and other domesticated species. Additional course work provides information on production and handling of animal-derived foods.

No one program fits all Animal Sciences students. Students come from varied backgrounds and their interests range from livestock and poultry production and management to marketing and public relations; from public education and extension to graduate training in research and teaching and veterinary medicine. No matter what species you have an interest in, the Animal Sciences major will allow you to combine your interest with your desire for an exciting and rewarding career.

As an Animal Sciences major, students have the opportunity to pursue specific interests by selecting one of three study options: Animal Industry, Food Industry or Pre-Professional. The Animal Industry option is for those students interested in animal production and management and allows specialization in one of three areas: livestock, equine, or dairy. The Food Industry option is designed to provide an emphasis on aspects of food processing, chemistry, and safety. The Pre-Professional option is a rigorous study program for students with interests in veterinary sciences, human medicine, and graduate research. Students must consult the pre-professional advisor or graduate school advisor of the university to which they intend on applying for additional or specific requirements.

Career Opportunities

To keep pace with the food, fiber, and recreation requirements of a growing world population, Animal Sciences graduates are needed in the livestock industry and closely related fields. The Animal Sciences major offers considerable flexibility in fulfilling specific career objectives, whether you are interested in working directly with livestock or indirectly in closely related areas such as agribusiness, research, government, or education.

Graduation Requirements

To earn the Bachelor of Science in Animal Sciences, the student must have a minimum of 120 credit hours with at least a 2.0 grade-point standing. A minimum of 45 credit hours must be from upper division courses (300 and above). Remedial courses may **not** be counted toward the total hours required for the degree. In addition to University Studies requirements, students must complete college, departmental and specialty support requirements.

Plan of Study

As an animal sciences major you are required to develop an acceptable **Plan of Study** during your sophomore year for your junior and senior years. The plan must be signed by your advisor and returned to the Office of Academic Programs.

If you are an upper division transfer student (from another university or from another UK college or department) then you will submit your plan during the first semester you are enrolled in the program. Consult your academic advisor in developing your Plan of Study.

Each student must complete the following:

College Required Hours

GEN 100 Issues in Agriculture	3
Subtotal: College Required Hours	3

University Studies Requirements

Hours

See "University Studies Program" on pages 84-88 of the 2010-2011 UK Bulletin for the complete University Studies requirements.

The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill University Studies areas. Students should work closely with their advisor to complete the University Studies Program requirements.

Courses marked with an asterisk (*) may also be used to satisfy University Studies requirements.

Inference-Logic

MA 123 Elementary Calculus and Its Applications	3
or	
MA 113 Calculus I	4

Natural Sciences

CHE 105 General College Chemistry I	3
CHE 107 General College Chemistry II	3

USP Electives

BIO 150 Principles of Biology I	3
BIO 152 Principles of Biology II	3

Premajor Requirements

Hours

*MA 123 Elementary Calculus and Its Applications	3
or	
*MA 113 Calculus I	4
*BIO 150 Principles of Biology I	3
*BIO 152 Principles of Biology II	3
*CHE 105 General College Chemistry I	3
*CHE 107 General College Chemistry II	3
*CHE 111 Laboratory to Accompany General Chemistry I	1
*CHE 113 Laboratory to Accompany General Chemistry II	2
**ENG 203 Business Writing	3

Subtotal: Premajor Hours 21-22

**Satisfies the Graduation Writing Requirement.

Major Requirements

Hours

ASC 101 Domestic Animal Biology	3
ASC 102 Applications of Animal Science	3
ASC 205 Livestock, People and Their Interactions	1
ASC 325 Animal Physiology	3
ASC 362 Animal Genetics	4
ASC 364 Reproductive Physiology of Farm Animals	4
ASC 378 Animal Nutrition and Feeding	4
ASC 470 Capstone for Animal Agriculture	3

Animal Sciences • 2

plus at least **three** of the following courses:

ASC 340 Poultry Production	2
ASC 404G Sheep Science	4
ASC 406 Beef Cattle Science	4
ASC 408G Swine Production	2
ASC 410G Equine Science	3
ASC 420G Dairy Cattle Science	3
Subtotal: Major Hours	32-36

In addition to the Major Requirements, students choose **one** of three options:

Option A: Animal Industry

Students fulfilling the Major Requirements are eligible for the Animal Industry Option by taking certain required Specialty Support Courses (see below). In addition, students with more specific interests may, but are not required to, choose from three specializations available within this Option.

No Specialization

(required Specialty Support only; see below) 0

Livestock Specialization

ASC 300 Meat Science 4
and at least **two** from:

ASC 340 Poultry Production	2
ASC 404G Sheep Science	4
ASC 406 Beef Cattle Science	4
ASC 408G Swine Production	2

Equine Specialization

ASC 310 Equine Anatomy and Conformation	2
ASC 320 Equine Management	3
ASC 410G Equine Science	3

Dairy Specialization

ASC 420G Dairy Cattle Science	3
ASC 564 Milk Secretion	3

Subtotal: Option A Hours **0-5**

Option B: Food Industry

Students fulfilling the Major Requirements are eligible for the Food Industry Option by taking certain required Specialty Support Courses (see below) and:

ASC 300 Meat Science	4
FSC 107 Introduction to Food Science	3

Subtotal: Option B Hours **7**

Option C: Pre-Professional

Students fulfilling the Major Requirements are eligible for the Pre-Professional Option by taking certain Specialty Support Courses (see below). Students must consult the pre-professional advisor or graduate school advisor of the university to which they intend on applying for additional or specific requirements.

Specialty Support

Animal Industry Option

CHE 230 Organic Chemistry I	
or	
CHE 236 Survey of Organic Chemistry	3
Depending on the student's area of interest and subject to the advisor's approval, additional courses at the 200-level or above may be selected from biochemistry, biology, chemistry, physics, statistics, or any agriculture-related area other than Animal Sciences	15

Food Industry Option

CHE 230 Organic Chemistry I	
or	
CHE 236 Survey of Organic Chemistry	3
FSC 304 Animal Derived Foods	5
Depending on the student's area of interest and subject to the advisor's approval, additional courses at the 200-level or above may be selected from biochemistry, biology, chemistry, physics, statistics, or any agriculture-related area other than Animal Sciences	12

Pre-Professional Option*

BIO 304 Principles of Genetics	
or	
ABT/ENT 360 Genetics	3-4
CHE 230/231 Organic Chemistry and Laboratory I	5
CHE 232/233 Organic Chemistry and Laboratory II	5
PHY 211 General Physics	5
PHY 213 General Physics	5

**Students must consult the pre-professional advisor or graduate school advisor of the university to which they will apply for additional or specific requirements.*

Subtotal: Specialty Support **18-24**

Electives

Electives should be selected to complete the 120 hours required for graduation.

Subtotal: Electives **minimum of 17**

TOTAL HOURS: **120**

College of Agriculture

ASC

Animal Sciences

ASC 101 DOMESTIC ANIMAL BIOLOGY. (3)

The first in a sequence of two courses providing an introduction to the subject of animal science. Emphasis is placed on a fundamental understanding of anatomy, physiology, nutrition, reproduction, genetic and behavior of domestic animals.

ASC 102 APPLICATIONS OF ANIMAL SCIENCE. (3)

The second in a sequence of two courses providing an introduction to the subject of animal science. Emphasis is placed on the application of scientific disciplines of anatomy, physiology, nutrition, reproduction, genetics and behavior in the management of domestic animals. Prereq: ASC 101.

ASC 106 ANIMAL AGRICULTURE IN THE MODERN WORLD. (3)

Relationships of food production and consumption to income of humans throughout the world; major livestock (beef and dairy cattle, sheep, swine, poultry and horses) production areas of the world; relationships between live animal merit and yield of retail cuts of meat; identification of skeletal components; identification and functions of reproductive and digestive tract components; characteristics of breeds of beef and dairy cattle, sheep, swine, poultry and horses.

ASC 205 LIVESTOCK, PEOPLE AND THEIR INTERACTIONS. (1)

Local experts in a wide variety of animal production enterprises and associated support services will give presentations on their area of expertise. Following the presentation, students will have the opportunity to discuss the topic of the day and potential employment opportunities in that field with the speaker. Prereq: ASC 101, ASC 102 (or concurrent enrollment).

ASC 300 MEAT SCIENCE. (4)

A historical perspective of the meat industry together with major changes in body type and composition in both the live animal and its end product meat. Students will evaluate live market animals (swine, cattle, sheep), harvest the market animals, and follow their carcasses and cuts through fabrication and distribution channels. Major topics of discussion will focus on growth and development, inspection, grading, physical and chemical composition of meat and postmortem changes that affect meat quality. Additional information will cover meat marketing trends, nutrition, meat cookery, meat selection, health issues and consumer information. Lecture: two hours; laboratory two hours per week. Prereq: ASC 106.

ASC 301 LIVESTOCK SELECTION AND EVALUATION. (3)

Selection principles of purebred and commercial beef cattle, sheep, swine and horses. Evaluation of live animal and carcass characteristics of beef cattle, sheep and swine. Emphasis placed on oral reasons. Laboratory, six hours. Not open to freshmen. Prereq: ASC 106.

ASC 303 EVALUATION AND GRADING OF MEATS. (2)

A detailed consideration of the factors involved in the selection, grading and evaluation of carcasses and wholesale cuts of beef, pork and lamb. Specific emphasis will be given to cutability, quality and maturity as they relate to palatability and acceptance by the consumer. Laboratory, four hours. Prereq: FSC 304 or FSC 306.

ASC 309 ADVANCED EVALUATION AND GRADING OF MEAT. (2)

Further consideration of the factors involved in selecting, grading and evaluating carcasses and wholesale cuts of beef, pork, and lamb. Emphasis will be placed on writing reasons. Laboratory, four hours. Prereq: ASC 303 or consent of instructor.

ASC 310 EQUINE ANATOMY AND CONFORMATION. (2)

Anatomy of the horse with emphasis on the feet and legs. Topics will also include analysis of gaits, movement and the causes of common unsoundness with particular attention to the relationship between conformation and soundness and the application of visual appraisal to the selection of horses for performance and breeding. Prereq: ASC 106 and ASC 120.

ASC 311 ADVANCED EQUINE EVALUATION. (1)

Advanced study of conformation and performance in the horse. Selection of horses of different breeds based on confirmation, breed character and movement. Emphasis will be placed on developing a knowledge of industry standards and preparation of oral reasons. Prereq: ASC 310.

ASC 312 ADVANCED LIVESTOCK SELECTION AND EVALUATION. (2)

Selection of purebred and commercial beef cattle, sheep, swine and horses. Special emphasis on oral reasons, livestock contest procedures and herd improvement principles. Laboratory, six hours. Prereq: ASC 301 or consent of instructor.

ASC

Animal Sciences

- ASC 320 EQUINE MANAGEMENT. (3)**
Study of the basic principles associated with horse management. Topics will include equine behavior, equine diseases and herd health programs, facilities and environmental management, nutrition and feeding management. Lecture, two hours; laboratory, three hours per week. Prereq: ASC 106 and ASC 120.
- ASC 321 DAIRY CATTLE EVALUATION. (2)**
Evaluation of dairy cattle for type characteristics. Laboratory, four hours.
- ASC 323 ADVANCED DAIRY CATTLE EVALUATION. (1)**
Open only to those who have consent of instructor. Laboratory, two hours. Prereq: ASC 321.
- ASC 325 ANIMAL PHYSIOLOGY. (3)**
An introduction to the functional anatomy and physiology of major body systems in domestic animals. Emphasis will be on how these systems interact to regulate circulation, gas exchange, acid-base balance, digestion and metabolism, locomotion and adapting to environmental changes. Prereq: BIO 152, CHE 115 or equivalent.
- ASC 340 POULTRY PRODUCTION. (2)**
A study of the application of avian biology to modern poultry production. Topics include anatomy, physiology, reproduction, incubation and embryonic development, breeding and genetics, nutrition and feeding, disease control, housing and environmental control, management, poultry and egg products, and the structure of the poultry industry. For majors and non-majors. Prereq: ASC 101 or ASC 102 or equivalent or permission of the instructor.
- ASC 362 ANIMAL GENETICS. (4)**
Study of genetics as applied to specific companion animals and livestock species. Roles of selection and mating systems and their expected consequences are examined when applied to qualitative and quantitative traits expressed by specific companion animals and various livestock species. Prereq: ASC 101.
- ASC 364 REPRODUCTIVE PHYSIOLOGY OF FARM ANIMALS. (4)**
Introduction to anatomy and physiological processes related to reproduction with a focus on farm animals. Evaluations of management procedures as they relate to reproductive physiology. Prereq: ASC 101 or BIO 152, CHE 230 or CHE 236. (Chemistry may be taken concomitantly.)
- ASC 378 ANIMAL NUTRITION AND FEEDING. (4)**
A fundamental study of the nutrients, their utilization and their role in the animal in conjunction with an applied understanding of the manner in which feedstuffs are evaluated and blended to meet the various species needs for those nutrients. Prereq: CHE 230 or 236.
- ASC 380 FEEDS AND FEEDING. (3)**
The composition and nutritional characteristics of common feedstuffs. The digestive systems, nutritional requirements, formulated rations and economical feeding programs for farm animals. Lecture, two hours; laboratory, two hours. Prereq: ASC 378.
- ASC 382 ANIMAL PRODUCTION PRINCIPLES. (3)**
A broad survey of animal agricultural management covering cattle, horses, poultry, swine, sheep and goats. Emphasis is placed on the practical application of scientific disciplines including anatomy, physiology, nutrition, reproduction and genetics. For nonmajors only.
- ASC 395 SPECIAL PROBLEM IN ANIMAL SCIENCE/FOOD SCIENCE. (1-4)**
Independent study in animal and food science under the supervision of a faculty member. May be repeated for a maximum of eight credits. Prereq: Consent of appropriate instructor. (Same as FSC 395.)
- ASC 399 EXPERIENTIAL LEARNING IN ANIMAL SCIENCES/FOOD SCIENCE. (1-6)**
A field-based learning experience in animal sciences and food science under the supervision of a faculty member. May be repeated to a maximum of six credits as an elective on a pass/fail basis. Prereq: Consent of instructor and department chairperson and completion of a departmental learning contract before registration. (Same as FSC 399.)

ASC

Animal Sciences

- *ASC 404G SHEEP SCIENCE. (4)**
History and importance of the sheep industry; application of the principles of selection, breeding, feeding and management of sheep for efficient lamb and wool production. Lecture, three hours per week; laboratory, three hours per week. Prereq: ASC 300, ASC 362, ASC 364, ASC 378 or consent of instructor.
- ASC 406 BEEF CATTLE SCIENCE. (4)**
Scope and importance of the beef cattle industry; roles of the major cattle breeds and organizations associated with the beef cattle industry; application of equipment, identification, nutrition, reproduction, genetics, health, marketing, taxation and management principles to beef cattle production; impact of current economic, social and environmental issues on the beef cattle industry. Lecture, three hours; laboratory, three hours. Prereq: ASC 300, ASC 362, ASC 364 and ASC 380 or consent of instructor.
- ASC 408G SWINE PRODUCTION. (2)**
A study of scope and importance of the swine industry. Application of principles of breeding, reproduction, nutrition, housing, health, and management of swine in modern production systems. Prereq: ASC 101, 102, 378.
- ASC 410G EQUINE SCIENCE. (3)**
Detailed study of the anatomy and physiology of the horse as they relate to the nutrition, reproduction, athletic ability, unsoundness and control of diseases and parasites. Lecture, two hours; laboratory, two hours. Prereq: ASC 362, ASC 364 and ASC 380 or consent of instructor.
- ASC 420G DAIRY CATTLE SCIENCE. (3)**
Scope and importance of the dairy cattle industry; selection, breeding, housing, feeding and management of dairy cattle. Lecture, two hours; laboratory, two hours. Prereq: ASC 362, ASC 364 and ASC 380 or consent of instructor.
- ASC 470 CAPSTONE FOR ANIMAL AGRICULTURE. (3)**
Discussion of the importance of livestock production to society and consideration of major issues impacting animal agriculture. Principles and practices learned in disciplinary and commodity Animal Sciences courses are integrated into a unified perspective, and the scientific method is employed as an approach to problem analysis and resolution. Refinement of skills in critical thinking, information gathering, writing, and oral communication is emphasized. Prereq: Senior standing in College of Agriculture, Animal Sciences major.
- ASC 564 MILK SECRETION. (3)**
Anatomy of the mammary gland, physiology and biochemistry of milk secretion and management factors affecting yield and composition of milk. Prereq: ASC 380, VS 350.
- ASC 601 MAMMALIAN ENDOCRINOLOGY. (3)**
An introduction to the basic anatomy, physiology and biochemistry of endocrine systems with emphasis on mechanisms of hormone synthesis, secretion and action. Lectures and reading assignments will focus on endocrine function in mammalian species, including laboratory animals, humans and livestock. Prereq: BCH 401G and BIO 350 or equivalents. (Same as PGY 601.)
- ASC 602 INTEGRATED NUTRITIONAL SCIENCES II. (3)**
Integrated study of the properties, metabolism, biochemical and physiological functions and interactions of vitamins and minerals, and their relationships to chronic diseases, deficiency symptoms and toxicity. Prereq: IBS 601, PGY 206. (Same as CNU/NS 602.)
- ASC 630 ADVANCED MEAT SCIENCE. (4)**
Advanced meat science with special reference to the histological, chemical, physical and microbiological properties as they relate to meat quality, organoleptic acceptability and processing procedures. Lecture, three hours; laboratory, two hours. Prereq: FSC 304, FSC 306 or equivalent; one course in histology or biochemistry or consent of instructor. (Same as FSC 630.)
- ASC 660 BIOLOGY OF REPRODUCTION. (3)**
Advanced study of current topics in reproductive biology. The course is comprised equally of student-led discussions and lectures given by faculty with research expertise in selected topics. Readings will be taken from current and classic literature. Topics covered include (but are not limited to) molecular and cellular endocrinology, hormone receptors and mechanism of action, reproductive neuroendocrinology, reproductive behavior, gametogenesis, fertilization, sexual differentiation, puberty, menopause and environmental effects on reproduction. Emphasis will be placed on the analysis and understanding of the experimental basis for current concepts in reproductive biology. Prereq: ASC/PGY 601 and ASC 364 or BIO/PGY 502 or consent of instructor. (Same as PGY 660 and ANA 660.)

ASC

Animal Sciences

ASC 680 LABORATORY METHODS IN NUTRITIONAL SCIENCES. (4)

The use of laboratory techniques and instrumentation in the solution of fundamental problems of nutrition. Lecture, one hour; laboratory, six hours.

ASC 681 ENERGY METABOLISM. (2)

An in-depth discussion of nutritional energetics, from the standpoint of factors which influence the utilization of dietary energy. A critical review of current literature. Prereq: ASC 378 or equivalent, BCH 502 or equivalent or consent of instructor.

ASC 682 MICROBIAL ECOLOGY OF DIGESTION. (4)

Principles of microbiology as they relate to nutrition and digestion in ruminant and nonruminant animals. Procedures for cultivation, isolation and characterization of anaerobic bacteria from the gastrointestinal tract. Methods for measuring and evaluating microbial growth and activity in the gastrointestinal tract. Lecture, two hours; laboratory, four hours. Prereq: BIO 476G or equivalent and consent of instructor.

ASC 683 PROTEIN METABOLISM. (2)

A study of the principles and present concepts of protein and amino acid nutrition and metabolism in the animal. Prereq: Graduate level biochemistry.

ASC 684 ADVANCED RUMINANT NUTRITION. (3)

Principles of ruminant metabolism in the utilization of feedstuffs for meat, milk, and wool production. Prereq: ASC 682 and two or more courses from ASC 681, ASC 683, ASC 685 and ASC 687 or consent of instructor.

ASC 685 MINERAL METABOLISM. (2)

An in-depth review of the function, requirement deficiency and toxicity of mineral elements in nutrition. Emphasis on the interactions between elements and current literature will be made. Prereq: ASC 378 or NFS 510 or equivalent, BCH 502 or equivalent or consent of instructor.

ASC 686 ADVANCED NONRUMINANT NUTRITION. (3)

A study of nutrient utilization as influenced by digestion, absorption and metabolism with emphasis on swine and poultry. Prereq: One course each in nutrition and biochemistry.

ASC 687 VITAMIN METABOLISM. (2)

Detailed study of the metabolism of vitamins and the role of vitamins in the metabolism of carbohydrates, proteins, lipids, and minerals. Prereq: BCH 502 or CHE 552 or consent of instructor.

ASC 688 EQUINE NUTRITION. (2)

Detailed study of anatomical, physiological and microbiological factors influencing the nutritive requirements of the equine for maintenance, growth, reproduction, lactation and work. Prereq: One course in nutrition and physiology or biochemistry or consent of instructor.

ASC 689 PHYSIOLOGY OF NUTRIENT DIGESTION AND ABSORPTION. (3)

An analysis and comparison of the structure and function of mammalian and avian gastrointestinal tracts, of feedstuff digestive processes, and of specific mechanisms responsible for nutrient absorption in various cell types. Emphasis is placed on livestock and avian species. Prereq: Graduate level Biochemistry.

ASC 748 MASTER'S THESIS RESEARCH. (0)

Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

ASC 749 DISSERTATION RESEARCH. (0)

Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

ASC

Animal Sciences

- ASC 767 DISSERTATION RESIDENCY CREDIT. (2)**
Residency credit for dissertation research after the qualifying examination. Students may register for this course in the semester of the qualifying examination. A minimum of two semesters are required as well as continuous enrollment (Fall and Spring) until the dissertation is completed and defended.
- ASC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)**
May be repeated to a maximum of 12 hours.
- ASC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)**
May be repeated indefinitely.
- ASC 771 ANIMAL SCIENCE SEMINAR. (1)**
May be repeated twice for a maximum of three credits.
- ASC 780 SPECIAL PROBLEMS IN ANIMAL DERIVED FOODS. (1-4)**
May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as FSC 780.)
- ASC 781 SPECIAL PROBLEMS IN GENETICS AND ANIMAL BREEDING. (1-4)**
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser.
- ASC 782 SPECIAL PROBLEMS IN ANIMAL NUTRITION. (1-4)**
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser.
- ASC 783 SPECIAL PROBLEMS IN REPRODUCTIVE PHYSIOLOGY (Subtitle required). (1-4)**
Intensive study or investigation of topics in physiology not covered in formalized courses. May be repeated under different subtitle to a maximum of nine credits. Prereq: Consent of graduate adviser.
- ASC 790 RESEARCH IN ANIMAL DERIVED FOODS. (1-6)**
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as FSC 790.)
- ASC 791 RESEARCH IN GENETICS AND ANIMAL BREEDING. (1-6)**
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser.
- ASC 792 RESEARCH IN ANIMAL NUTRITION. (1-6)**
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser.
- ASC 793 RESEARCH IN REPRODUCTIVE PHYSIOLOGY (Subtitle required). (1-6)**
Original investigation of mechanisms and problems related to mammalian reproduction. May be repeated under different subtitle to a maximum of nine credits. Prereq: Consent of graduate adviser.

Equine Science and Management

College of Agriculture
and School of Human
Environmental Sciences

The horse industry is a dynamic industry that encompasses not only the breeding, raising and training of horses but also the development of activities for the use of the horse in sports and recreation. The industry has a significant economic impact across the U.S. and world-wide.

Equine science and management involves the study and application of science and business concepts to the horse industry. Additional course work supports learning in areas that aid in breeding and raising horses and marketing the industry. Students come from varied equine backgrounds but have a common interest in the horse. Regardless of which breed of horse or activity focus students have, equine science and management majors will have the opportunity to combine their interest in the horse with a desire to become active participants in the horse industry by selecting either the equine science option or the equine management option.

The equine science option is for students who have a primary interest in horse production. The equine management option is designed for students who are interested in the business aspect of the horse industry. Students in equine science and management considering a career in veterinary medicine or graduate research can meet those goals in the degree program as well. Interested students need to consult with an advisor to ensure all specific academic requirements are met.

Career Opportunities

The horse industry is continually changing. Equine science and management graduates are needed in all aspects of the industry including production, business management and other related support industries.

Graduation Requirements

To earn the Bachelor of Science in Equine Science and Management, the student must have a minimum of 120 credit hours with at least a 2.0 grade-point average. A minimum of 45 credit hours must be from upper division courses (300 level and above). Remedial courses may **not** be counted toward the total hours required for the degree.

Plan of Study

As an equine science and management major you are required to develop an acceptable **Plan of Study** during your sophomore year for your junior and senior years. The plan must be signed by your advisor and returned to the Office of the Associate Dean for Academic Programs.

If you are an upper division transfer student (from another university or from another UK college or department) then you will submit your plan during the first semester you are enrolled in the program.

Students must complete the following:

College Required Hours

*GEN 100 Issues in Agriculture	3
Subtotal: College Required Hours	3

**Except for students who enter the College after having already completed the U.S. Citizenship requirement of the UK Core.*

UK Core Requirements

See the *UK Core* section of the 2011-2012 *Undergraduate Bulletin* at: www.uky.edu/Registrar/bulletinCurrent/ukc.pdf for the complete UK Core requirements. The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill UK Core areas. Students should work closely with their advisor to complete the UK Core requirements.

I. Intellectual Inquiry in Arts and Creativity

Choose one course from approved list 3

II. Intellectual Inquiry in the Humanities

Choose one course from approved list 3

III. Intellectual Inquiry in the Social Sciences

Choose one course from approved list 3

IV. Intellectual Inquiry in the Natural, Physical, and Mathematical Sciences

*CHE 105 General College Chemistry I 3

*CHE 111 Laboratory to Accompany General Chemistry I 1

V. Composition and Communication I

CIS/WRD 110 Composition and Communication I 3

VI. Composition and Communication II

CIS/WRD 111 Composition and Communication II 3

VII. Quantitative Foundations

MA 123 Elementary Calculus and Its Applications

or

MA 113 Calculus I 3-4

VIII. Statistical Inferential Reasoning

STA 210 Making Sense of Uncertainty:

An Introduction to Statistical Reasoning 3

IX. Community, Culture and Citizenship in the USA

GEN 100 Issues in Agriculture 3

X. Global Dynamics

Choose one course from approved list 3

UK Core Hours 30-32

**CHE 105/111 are part of the premajor requirement for Option A: Equine Science. Students pursuing Option B: Equine Management should choose from the approved list of courses to fulfill this area.*

–CONTINUED–

Equine Science and Management • 2

Option A: Equine Science

Premajor Requirements

BIO 150 Principles of Biology I	3
BIO 152 Principles of Biology II	3
CHE 105 General College Chemistry I	3
CHE 107 General College Chemistry II	3
CHE 111 Laboratory to Accompany General Chemistry I	1
CHE 113 Laboratory to Accompany General Chemistry II	2
ECO 201 Principles of Economics I	3
MA 123 Elementary Calculus and Its Applications	
or	
MA 113 Calculus I	3-4
Subtotal: Premajor Hours	21-22

Major Requirements

ASC 101 Domestic Animal Biology	3
EQM 101 Introduction to the Horse and the Horse Industry	2
EQM 105 Equine Behavior and Handling	2
ASC 310 Equine Anatomy and Conformation	2
ASC 320 Equine Management	3
EQM 351 Equine Health and Diseases	3
EQM 399 Equine Science and Management Internship	3
ASC 410G Equine Science	3
EQM 490 Capstone in Equine Science and Management	3
AEC 302 Agricultural Management Principles	4
Subtotal: Major Hours	28

Option A Hours

CHE 236 Survey of Organic Chemistry	3
ASC 325 Animal Physiology	3
ASC 364 Reproductive Physiology of Farm Animals	4
ASC 378 Animal Nutrition and Feeding	4
PLS 366 Fundamentals of Soil Science	4
PLS 510 Forage Management and Utilization	3
Subtotal: Option A Hours	21

Specialty Support Requirement

The student will choose, in consultation with an advisor, at least 18 hours of courses at the 200 level or above that will strengthen the program in an area of importance to the student. To aid in developing this area of study, a list of suggested courses is available to advisors. The list includes courses in animal sciences, plant and soil sciences, biosystems and agricultural engineering, agricultural economics plus other areas of study at UK.

Subtotal: Option A Specialty Support	18
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Electives

Electives should be selected by the student to lead to the minimum total of 120 hours required for graduation

Subtotal: Electives	minimum of 4
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Total Minimum Hours for Program	120
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Option B: Equine Management

Premajor Requirements

BIO 150 Principles of Biology I	3
BIO 152 Principles of Biology II	3
*CHE 104 Introductory General Chemistry	3
*CHE 106 Introduction to Inorganic, Organic and Biochemistry	4
ECO 201 Principles of Economics I	3
MA 123 Elementary Calculus and Its Applications	
or	
MA 113 Calculus I	3-4
Subtotal: Premajor Hours	19-20

**This sequence of chemistry courses will not satisfy requirements for admission to Veterinary School. Consult your advisor for more details.*

Major Requirements

ASC 101 Domestic Animal Biology	3
EQM 101 Introduction to the Horse and the Horse Industry	2
EQM 105 Equine Behavior and Handling	2
ASC 310 Equine Anatomy and Conformation	2
ASC 320 Equine Management	3
EQM 351 Equine Health and Diseases	3
EQM 399 Equine Science and Management Internship	3
ASC 410G Equine Science	3
EQM 490 Capstone in Equine Science and Management	3
AEC 302 Agricultural Management Principles	4
Subtotal: Major Hours	28

Option B Hours

STA 291 Statistical Methods	3
ACC 201 Financial Accounting I	3
ECO 202 Principles of Economics II	3
MKT 300 Marketing Management	3
AEC 305 Food and Agricultural Marketing Principles	3
AEC 320 Agriculture Product Marketing and Sales	3
HMT 320 Hospitality and Tourism Marketing	3
Subtotal: Option B Hours	21

Specialty Support Requirement

The student will choose, in consultation with an advisor, at least 18 hours of courses at the 200 level or above that will strengthen the program in an area of importance to the student. To aid in developing this area of study, a list of suggested courses is available to advisors. The list includes courses in animal sciences, plant and soil sciences, biosystems and agricultural engineering, agricultural economics plus other areas of study at UK.

Subtotal: Option B Specialty Support	18
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Electives

Electives should be selected by the student to lead to the minimum total of 120 hours required for graduation

Subtotal: Electives	minimum of 4
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Total Minimum Hours for Program	120
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College of Agriculture

EQM Equine Science and Management

EQM 101 INTRODUCTION TO THE HORSE AND THE HORSE INDUSTRY. (2)

An introduction to the horse and its basic biology, behavior and conformation. Additional subjects related to breeds, activities, the industry and current issues will also be covered. Prereq: Restricted to Equine Science and Management majors.

EQM 105 EQUINE BEHAVIOR AND HANDLING. (2)

This course covers basic equine behavior and how to handle horses safely in a variety of management situations. Students will use their understanding of equine behavior to develop management strategies and practices for all classes of horse. Prereq: EQM 101 and restricted to Equine Science and Management majors.

EQM 351 EQUINE HEALTH AND DISEASES. (3)

This course will focus on health issues affecting the horse industry. Students will learn about the diseases and parasites affecting horses in Kentucky and across the nation. In addition, discussion will focus on management practices used on horse enterprises to reduce incidence of disease and maintain health for breeding horses, performance horses and the recreational horse. Prereq: EQM 105 and major in Equine Science and Management B.S. degree program.

EQM 399 EQUINE SCIENCE AND MANAGEMENT INTERNSHIP. (1-6)

The equine internship is designed to provide students with experiences in career opportunities related to the horse industry. The internship gives students an educational experience that allows them to see the application of concepts learned in the classroom in an industry setting approved by the instructor. Prereq: Junior standing (minimum of 60 earned credits), at least 12 hours of EQM core courses, 40 hours of verifiable previous work experience in the equine industry, a GPA of 2.0 or above, and an approved learning contract.

EQM 490 CAPSTONE IN EQUINE SCIENCE AND MANAGEMENT. (3)

Discussion of the major issues impacting today's equine industry. Students will use concepts from core and discipline related courses to analyze a variety of scenarios related to the industry. The scenarios will range from production to enterprise management, but may also include issues that have the potential to impact all aspects of the industry. Prereq: Senior standing, major in Equine Science and Management degree.



Food Science

College of Agriculture
and School of Human
Environmental Sciences

Food science is the study of the transformation of biological materials into food products acceptable for human consumption. This requires studying diverse scientific disciplines related to food, including chemistry, engineering, microbiology, biochemistry, toxicology, and management; and effectively applying the industrial and practical aspects to product development, food processing, preservation, and marketing. The program is administered by the Department of Animal and Food Sciences and offers training in the basic sciences and in the fundamentals of food science.

Career opportunities in food industries include: management, research and development of new food products and ingredients, process supervision, quality control, procurement, distribution, sales, and merchandising. Positions include sales and services in allied industries; consulting and trade association activities; and promotional and educational services. Governmental agencies employ food scientists whose work is directed towards research, regulatory control, and the development of food standards.

Graduation Requirements

To earn the Bachelor of Science in Food Science, the student must complete a minimum of 128 semester hours with at least 45 hours from courses at the 300 level and above. A 2.0 grade-point standing (on a 4.0 scale) is necessary and remedial courses may **not** be counted toward the total hours required for the degree.

The Food Science program meets the requirements for accreditation by the Institute of Food Technologists and the National Organization of Food Science Professionals.

Plan of Study

As a food science major you are required to develop an acceptable **Plan of Study** during your sophomore year for your junior and senior years. The plan must be signed by your advisor and returned to the Office of Academic Programs.

If you are an upper division transfer student (from another university or from another UK college or department) then you will submit your plan during the first semester you are enrolled in the program.

Consult your academic advisor in developing your Plan of Study.

Each student must complete the following:

College Required Hours

GEN 100 Issues in Agriculture 3

Subtotal: College Required Hours 3

University Studies Requirements

Hours

See "University Studies Program" on pages 84-88 of the 2010-2011 *UK Bulletin* for the complete University Studies requirements.

The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill University Studies areas. Students should work closely with their advisor to complete the University Studies Program requirements.

Courses marked with an asterisk (*) may also be used to satisfy University Studies requirements.

Inference-Logic

MA 123 Elementary Calculus and Its Applications 3

Natural Sciences

CHE 105 General College Chemistry I 3

CHE 107 General College Chemistry II 3

CHE 111 Laboratory to Accompany General Chemistry I 1

CHE 113 Laboratory to Accompany General Chemistry II 2

Social Sciences

AEC 101 The Economics of Food and Agriculture 3

Plus one additional course 3

USP Electives

BIO 150 Principles of Biology I 3

BIO 152 Principles of Biology II 3

Premajor Requirements

Hours

MA 132 Calculus for the Life Sciences 3

BIO 208 Principles of Microbiology 3

BIO 209 Introductory Microbiology Laboratory 2

CHE 236 Survey of Organic Chemistry 3

NFS 212 Introductory Nutrition 3

PHY 211 General Physics 5

STA 291 Statistical Method 3

Subtotal: Premajor Hours 22

Major Requirements

Hours

Required:

FSC 107 Introduction to Food Science 3

AEN 340 Principles of Food Engineering 4

NFS 311 Nutritional Biochemistry **or**

BCH 401G Fundamentals of Biochemistry 3

FSC 306 Introduction to Food Processing 4

FSC 434G Food Chemistry 4

FSC 530 Food Microbiology 5

FSC 535 Food Analysis 4

FSC 536 Advanced Food Technology 4

Subtotal: Major Hours 31

Specialty Support

Students must select 22 credits from the following suggested list of support courses:

AEC 201 Introduction to Farm and Natural Resource Finance 3

AEC 305 Food and Agricultural Marketing Principles 3

ABT/ENT 360 Genetics 3

CS 101 Introduction to Computing I 3

ECO 201 Principles of Economics I 3

FSC 304 Animal Derived Foods 5

FSC 395 Special Problem in Animal Science/Food Science 1-4

FSC 399 Experiential Learning in Animal Sciences/Food Science 1-6

FSC 430G Sensory Evaluation of Foods 3

FSC 538 Food Fermentation and Thermal Processing 4

FSC 540 Food Sanitation 3

NFS 304 Experimental Foods 3

Subtotal: Specialty Support 22

Electives

Elective courses should be selected by the student to lead to the minimum total of 128 hours required for graduation.

Subtotal: Electives minimum of 11

TOTAL HOURS: 128

College of Agriculture

FSC

Food Science

FSC 107 INTRODUCTION TO FOOD SCIENCE.

(3)

A general basic food science course that deals with world food needs and available food supplies, types of food and nutritive values and use, food processing technology and distribution methods.

FSC 304 ANIMAL DERIVED FOODS.

(5)

Principles of red meat, poultry, fish and dairy processing; physical and chemical composition and nutritive values of meat, dairy and egg products; structure and identification of muscle; inspection, grading, formulation, processing and preservation methods; organoleptic properties and consumer acceptance of processed meat, dairy and egg products. Lecture, three hours; laboratory, four hours per week. Prereq: GEN 106 or GEN 107.

FSC 306 INTRODUCTION TO FOOD PROCESSING.

(4)

Commercial processing of foods including theory and use of heat exchangers, separators, freezers, air and vacuum dryers, evaporators, membrane separation, electrodialysis, emulsion formers, extruders, and irradiators. Physico-chemical changes in osmotic pressure, vapor pressure, pH surface tension, viscosity, emulsification and colloidal dispersions in processed foods will be discussed. Processing of waste streams will also be discussed. Prereq: CHE 105, CHE 107, CHE 236.

FSC 395 SPECIAL PROBLEM IN ANIMAL SCIENCE/FOOD SCIENCE.

(1-4)

Independent study in animal and food science under the supervision of a faculty member. May be repeated for a maximum of eight credits. Prereq: Consent of appropriate instructor. (Same as ASC 395.)

FSC 399 EXPERIENTIAL LEARNING IN ANIMAL SCIENCES/FOOD SCIENCE.

(1-6)

A field-based learning experience in animal sciences and food science under the supervision of a faculty member. May be repeated for a maximum of six credits as an elective on a pass/fail basis. Prereq: Consent of instructor and department chairperson and completion of a departmental learning contract before registration. (Same as ASC 399.)

#FSC 430 SENSORY EVALUATION OF FOODS.

(3)

This course deals with the sensory evaluation methods used for food products based on flavor, odor, color, and texture. This includes techniques for measuring sensory attributes, instrumental analysis of foods, statistical analyses of data, and how sensory evaluation programs are utilized in the food industry. Prereq: STA 291 and FSC 306, or NFS 304 (prerequisite or concurrent enrollment).

FSC 434G FOOD CHEMISTRY.

(4)

Chemical and physical properties of proteins, lipids, carbohydrates, pigments and food additives as they relate to food processing and food preservation. Lecture, three hours; laboratory, two hours. Prereq: BCH 401G or consent of instructor.

FSC 530 FOOD MICROBIOLOGY.

(5)

Study of procedures for the enumeration and identification of foodborne microorganisms important in the food industry. Principles for controlling contamination and growth of microorganisms during production, processing, handling and distribution of food products. Lecture, three hours; laboratory, four hours. Prereq: BIO 108 and BIO 109 or equivalent.

FSC 535 FOOD ANALYSIS.

(4)

Techniques and instrumentation used to determine the chemical composition of foods. Emphasis is placed on the principles of chemical analysis as it relates to foods and food processing. Lecture, two hours; laboratory, four hours per week. Prereq: FSC 434G.

FSC 536 ADVANCED FOOD TECHNOLOGY.

(4)

Concepts of developing/improving new food products or food processing including: consumer awareness, marketing, ingredient specifications, product formulation, stabilization of product, packaging to meet shelf life goals, shelf testing of products, challenge testing, establishment of HACCP system, consumers testing, market testing, and introduction to the market. A capstone course, where all concepts of food science are used to extend or create new food products for the market place. Lecture, three hours; laboratory, two hours. Prereq: AEN 340, FSC 306, and FSC 335; or consent of instructor.

FSC 538 FOOD FERMENTATION AND THERMAL PROCESSING.

(4)

Thermal processing of foods. The use of microorganisms in the preservation of raw foods and the manufacture of new foods. Manipulation and improvement of cultures to ensure production of desirable end products. Lecture, three hours; laboratory, two hours. Prereq: BIO 108, BIO 109, BIO 476G, FSC 530 or consent of instructor.

FSC

Food Science

FSC 540 FOOD SANITATION.

(3)

A study of sanitation principles and techniques for ensuring the safety and wholesomeness of our food supply. Prereq: FSC 530 or equivalent.

FSC 603 INTEGRATED NUTRITIONAL SCIENCES III.

(2)

This course is aimed at providing medical and health professional students with a working knowledge of dietary requirements and guidelines, nutritional assessment and nutritional requirements, food safety issues and nutritional needs throughout the lifecycle. Prereq: Health Professional Graduate Status. (Same as CNU/NS 603.)

FSC 630 ADVANCED MEAT SCIENCE.

(4)

Advanced meat science with special reference to the histological, chemical, physical and microbiological properties as they relate to meat quality, organoleptic acceptability and processing procedures. Lecture, three hours; laboratory, two hours. Prereq: FSC 304, FSC 306 or equivalent; one course in histology or biochemistry or consent of instructor. (Same as ASC 630.)

FSC 636 FOOD PACKAGING.

(2)

Detailed description of food packaging materials, composition and resistance to chemical and physical damage and their use in food systems as well as criteria for selection of packaging systems for specific food processing techniques will be presented. Methods of production, e.g.: blow mold, casting and extrusion; layering; lamination and co-extrusion; processing; and printing and sealing will be discussed. Prereq: FSC 536, FSC 538 or equivalent or consent of instructor.

FSC 638 FOOD PROTEINS.

(3)

This course deals with chemical, biochemical, and enzymatic significance of proteins in food systems; physiochemical and functional properties of animal and plant proteins, their interactions with lipids, carbohydrates, flavors, minerals and other food components during processing and storage, and resulting modifications of food quality. Prereq: FSC 434G or consent of instructor.

FSC 640 FOOD LIPIDS.

(3)

An advanced study of the physical, chemical, and biochemical significance of lipids in foods. Topics include the structure and function of lipids in post-harvest physiology, interaction with other food components, and the effect of lipids on the physical properties of foods during processing and storage. Prereq: One course in Food Chemistry or Biochemistry.

FSC 642 FOOD PIGMENTS.

(3)

Course deals with the chemistry and biochemistry of color of different food products which influence consumers' purchase decision. Lecture topics include fundamental basis of food color and pigments, manipulation of food color, influence of processing on food color, and regulatory issues related to food pigments. Prereq: FSC 434G.

FSC 780 SPECIAL PROBLEMS IN ANIMAL DERIVED FOODS.

(1-4)

May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as ASC 780.)

FSC 790 RESEARCH IN ANIMAL DERIVED FOODS.

(1-6)

Problems involving original investigation. May be repeated for maximum of nine credits. Prereq: Consent of graduate adviser. (Same as ASC 790.)

CURRICULAR FRAMEWORK

	Number of Credit Hours
I. Intellectual Inquiry (one course in each area)	
Natural/ Physical/ Mathematical	3
Social Sciences	3
Humanities	3
Arts and Creativity	3
II. Composition and Communication	
Composition and Communication I (CIS or WRD 110)	3
Composition and Communication II (CIS or WRD 111)	3
III. Quantitative Reasoning (one in each area)	
Quantitative Foundations**	3
Statistical Inferential Reasoning	3
IV. Citizenship (one course in each area)	
Community, Culture and Citizenship in the USA	3
Global Dynamics	3

Credit Hour Total = 30 minimum*

*Some UK Core courses may be more than 3 credit hours

** Note that MA 109 is NOT approved as a Quantitative Foundations course. Students in a major requiring calculus will use calculus course (MA 113, 123, or 137) while students not requiring calculus should take MA 111, PHI 120, or another quantitative foundations course.

Appendix V-8. Enrollment in the three majors offered through the Department of Animal and Food Sciences.

year	ASC	EQM	FSC	total
2005-6	297		30	327
2006-7	296		23	319
2007-8	253*		21	274*
2008-9	236*		14	250*
2009-10	227	121	18	366
2010-11	225	165	26	416
2011-12	228	209	29	466

* Drop in enrollment during this period is due to the offering of the equine sciences major as an independent, untitled major pending senate approval.

Appendix V-9. Student Credit Hours in ASC (2005-2011).

Session	Course Level	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
8wk Summer	300-499	6	5	9	18	9	2
	600-799	5			6		3
	Session Total	11	5	9	24	9	5
Fall	Course Level						
	100-299	396	437	477	563	559	701
	300-499	817	893	1,100	1,117	1,091	971
	600-799	169	181	174	163	164	146
	Session Total	1,382	1,511	1,751	1,843	1,814	1,818
Spring	Course Level						
	100-299	350	337	331	311	351	375
	300-499	895	934	927	998	917	934
	500-599	42	33	33	18	18	21
	600-799	97	138	135	144	109	144
Session Total	1,384	1,442	1,426	1,471	1,395	1,474	
4wk Summer	Course Level						
	300-499	3		15	24	12	
	600-799			4			
Session Total	3		19	24	12		
Academic Year Totals	Course Level						
	100-299	746	774	808	874	910	1,076
	300-499	1,721	1,832	2,051	2,157	2,029	1,907
	500-599	42	33	33	18	18	21
	600-799	271	319	313	313	273	293
Total	2,780	2,958	3,205	3,362	3,230	3,297	

Appendix V-9 (continued): Student Credit Hours in FSC (2005-2011).

Semester	Course Level	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
8wk Summer	300-499	2					
	600-799	.	.	.	.	.	.
	Session Total	2	.	.	.	.	.
Fall	Course Level						
	300-499	48	46	47	18	46	91
	500-599	123	68	108	99	133	167
	600-799	9	27	3	22	49	41
	Session Total	180	141	158	139	228	299
Spring	Course Level						
	100-299	75	132	51	75	90	87
	300-499	49	67	76	42	55	50
	500-599	64	32	88	32	28	76
	600-799	5	18	7	38	4	24
	Session Total	193	249	222	187	177	237
Academic Year Total	Course Level						
	100-299	75	132	51	75	90	87
	300-499	99	113	123	60	101	141
	500-599	187	100	196	131	161	243
	600-799	14	45	10	60	53	65
	Total	375	390	380	326	405	536

Appendix V-9 (continued): Student Credit Hours in EQM (2009-2011).

Semester	Course Level	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
Fall	100-299					120	188
	300-499	.	.	.	.	144	249
	Session Total	.	.	.	.	264	437
Spring	Course Level						
	100-299					92	122
	300-499	.	.	.	.	21	24
	Session Total	.	.	.	.	113	146
Academic Year Totals	Course Level						
	100-299					212	310
	300-499	.	.	.	.	165	273
	Total	.	.	.	.	377	583

Appendix V-10: Student evaluations of course and teaching for individual course prefix groups (ASC, FSC and EQM) taught by faculty from the Department of Animal and Food Sciences.

year	semester	ASC		FSC		EQM		college	
		course	teaching	course	teaching	course	teaching	course	teaching
2011	spring	3.4	3.5	3.3	3.2	3.6	3.8	3.4	3.5
2010	fall	3.3	3.3	3.6	3.5	3.7	3.6	3.4	3.5
	spring	3.3	3.3	3.5	3.5	3.5	3.5	3.4	3.4
2009	fall	3.3	3.4	3.7	3.7	3.2	3.1	3.3	3.4
	spring	3.4	3.5	3.7	3.8	3.5	3.5	3.3	3.4
2008	fall	3.1	3.2	3.8	3.9			3.3	3.4
	spring	3.4	3.5	3.6	3.8			3.3	3.3
2007	fall	3.3	3.4	3.9	3.9			3.4	3.4
	spring	3.4	3.5	3.4	3.5			3.3	3.4
2006	fall	3.4	3.5	3.6	3.5			3.3	3.4
	spring	3.3	3.5	3.5	3.6			3.3	3.4
2005	fall	3.4	3.5	3.5	3.5			3.3	3.4

Appendix V-11: Fulltime equivalents (FTEs) devoted to teaching over the review period.

Academic Year	Teaching FTEs
2011-2012	8.86
2010-2009	10.11
2009-2008	10.99
2008-2009	9.79
2007-2008	8.84
2006-2007	8.37
2005-2006	8.33

Animal and Food Sciences

Appendix VI

Undergraduate Food Sciences Program



May 17, 2010

Dr. William Boatright
University of Kentucky
Dept. of Animal and Food Sciences
412 W. P. Garrigus Bldg.
Lexington, KY 40546-0215

Dear Dr. Boatright:

I am pleased to inform you that the IFT Higher Education Review Board (HERB) approved your program, B.S. in Food Science, in regards to meeting the IFT Undergraduate Education Standards for Degrees in Food Science. Please ensure that students, faculty and administrators understand that only students enrolled in this particular emphasis/option are eligible for IFT scholarships.

Overall, your reviewers felt like you adequately addressed their concerns surrounding the sections IX and X of your application by providing information regarding your capstone course, industrial feedback on students in internship programs, and your graduate survey results. For your next review, HERB would like to see more qualitative data stemming from discussions with industry professionals involved with the internship program. In addition, they would also like to see how you have improved student participation in leadership activities.

We look forward to reviewing your program again in Fall 2014. Please note that the 2011 version of the IFT Guidelines will be in place for your next review. You can visit the "Guidebook" online, which will be updated, and the Journal of Food Science Education at www.ift.org for ideas and additional resources for improvement.

Thank you for your time and effort in submitting your application materials and your continued efforts in training the next generation of food scientists.

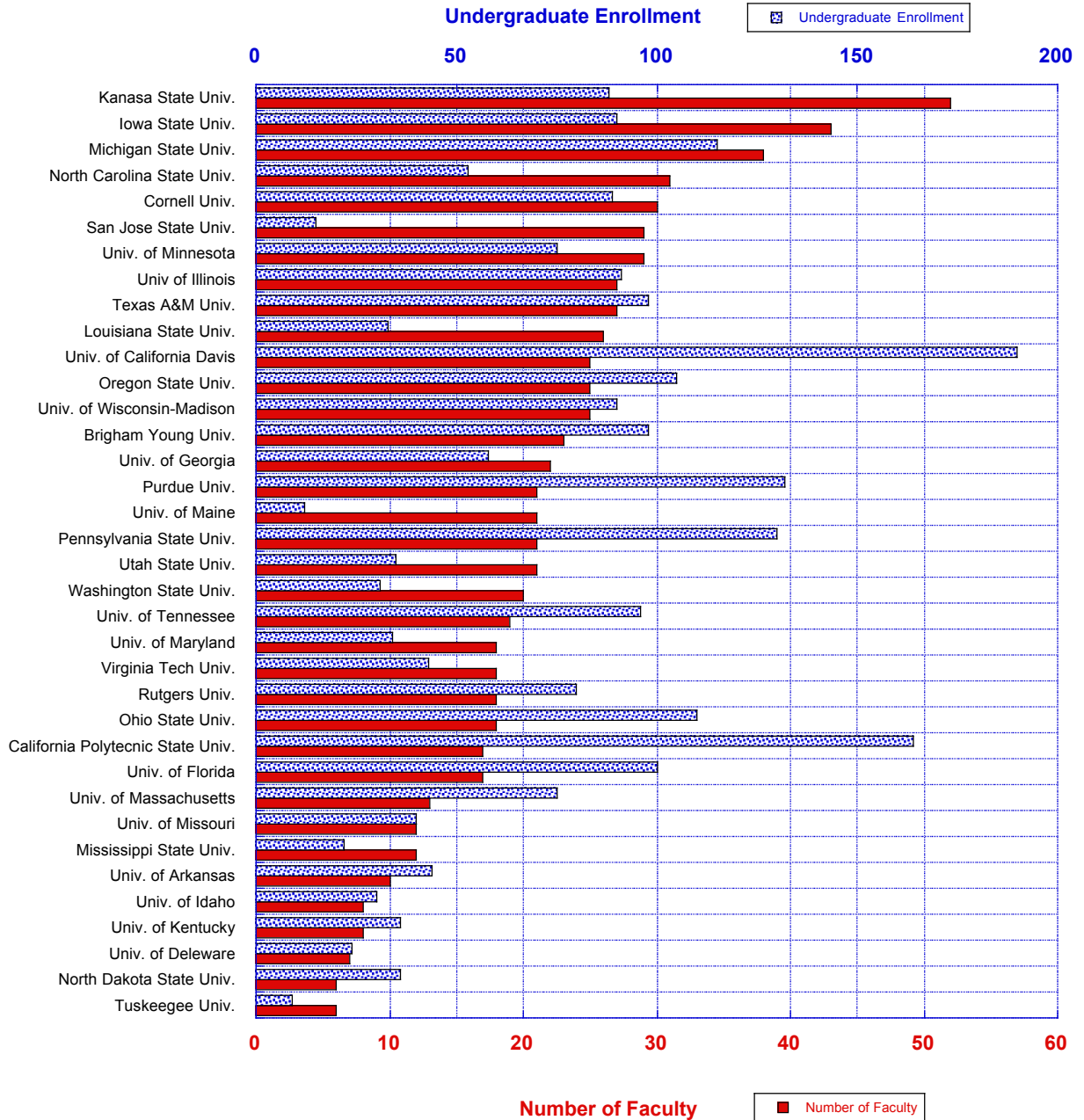
Sincerely,

Steven J. Mulvaney
Chair, Higher Education Review Board

C: George Miller, IFT Staff Coordinator

Appendix B

Faculty Numbers vs. Undergraduate Enrollments in IFT-Approved Food Sciences Programs



*Enrollment numbers from: *Food Technology*, 2011. Food Science Flourishes on Campus 3:48-52
 Faculty numbers from departmental web-sites on July 26, 2011.

Appendix C. Food Science Undergraduate Program Outcomes and Modifications

Program outcomes for Food Science majors have been evaluated on an on-going basis. These program outcomes are periodically reviewed and revised by the food science faculty in response to input from stakeholders and educators.

Program Outcomes for Food Science Majors

Graduates of the University of Kentucky undergraduate Food Science program will be able to:

1. apply a thorough academic background in food science and related disciplines toward successful entry level employment within the food industry, or for transition to a food science graduate program
2. demonstrate relevant laboratory skills and a basic understanding of underlying principles of laboratory techniques.
3. apply a fundamental knowledge of food chemistry, microbiology, nutrition, processing, analyses and engineering toward food related research and product development.
4. apply quality assurance procedures in food processing such as Hazard Analysis and Critical Control Points (HACCP) toward the production of safe and nutritious foods.
5. be able to find, understand and adhere to federal laws and regulations in the manufacturing and sale of foods and food products.
6. demonstrate and ability to manage numerous tasks and assignments in an ethical and professional manner in order to efficiently meet deadline challenges.
7. demonstrate communication, computer and information technology skills necessary to obtain, analyze, interpret and convey scientific information to individuals or groups at various educational levels.

Summary of recent assessment results and program modifications

Food Science Course Evaluations. Food Science course evaluations performed by our students from 2005-2011 have generally been in the top 15 percentile, however in recent years these evaluations have shown a trend toward scores in the top 5 percentile.

**Mean of all Food Science Course Evaluations by Semester
Fall 2005-Fall 2010 (On a Four Point Scale)**

Semester	No. of Students	Quality of Teaching	Quality of the Course
Fall 2005	26	3.5	3.5
Spring 2006	33	3.5	3.6
Fall 2006	29	3.6	3.5
Spring 2007	46	3.4	3.5
Fall 2007	24	3.9	3.9
Spring 2008	37	3.6	3.8
Fall 2008	25	3.8	3.9
Spring 2009	30	3.7	3.8
Fall 2009	47	3.7	3.7
Spring 2010	28	3.5	3.5
Fall 2010	52	3.5	3.6
Spring 2011	41	3.2	3.3

Student performance in internships (FSC 399)

Companies that provided paid internships for students for the summers of 2009, 2008, and 2007 are listed below. All students were required to keep a journal. All students were required to check in with their advisor on a monthly basis. After successful completion of all internship, students conduct a presentation of their experiences to UK faculty and students. The lowest paid internship was 12.00/hr and the highest was \$17.00/hr. Jobs ranged from QA, R&D, manufacturing, to relief worker.

Internships presented	Students			Journal	Seminar
	2009	2008	2007		
Winchester farms Dairy	1	2	1	All	All
Martek		0	1	0	All
					All
Brown Forman	0	1	1	All	All
White Castle	1	2	1	All	All
KFC	0	0	1	All	All
D. D. Williamson	2	0	1	All	All
Purnell Sausage	1	0	1	All	All
Procter & Gamble	1	0	0	All	All
Nestle	1	2	2	All	All
Continental Mills	0	0	1	All	All
Hunts	0	0	1	All	All
Sara Lee	2	1	1	All	All
FB3	0	0	1	All	All
Wild Flavors	0	1	1	All	All
Bluegrass Dairies	0	1	1	All	All
Dudley's	1	0	0	All	All
Magee's Bakery	1	0	0	All	All
Old Chicago	1	0	0	All	All
Thomas Penway	1	0	0	All	All
Total	13	11	14		

Direct input of Food Industry experts into our capstone course (Advanced Food Technology – FSC 536) and other courses

As part of the 2001 IFT annual meeting's sessions on Food Science education, this course was highlighted as a model for the use of corporate research and development personnel to enhance student-learning opportunities (Hicks CL, 2001. IFT Annual Meeting, Abstract 73A-4). Industry experts engaged to teach course materials include:

- Bart Borkorski, CEO of Thomas Penway, Lexington KY.
- Sheri Klose, Senior R&D Supervisor, Brown Forman, Louisville KY,
- Laura Ekhart, Senior R&D Specialist, Dawn Foods, Louisville KY
- Edmond Joseph, R&D manager, Morgan Foods, Austin IN,
- Marlene Smothers, Senior Sweets Division Manager, Wild Flavors, Erlanger KY
- Dr. Linda Munson, Senior sensory specialist at Kentucky Fried Chicken, Louisville KY
- Bob Hosfeld, Senior R&D specialist, Kroger & Co. Cincinnati OH
- Joe Dunsmore, Senior Research Specialist, Blue Grass Dairies, Springfield KY
- Terri Watts. Senior Marketing Specialist, Portion Pak, Mason OH
- Jodi Renner-Nantz, Food Science Chemist, D. D. Williamson, Louisville KY,
- Daren Grey, R&D manager, Papa Johns, Louisville KY
- Dr. Yen Hsieh, Senior product analyst & Chemical Engineer, Proctor & Gamble, Cincinnati OH

Other courses that utilizes industrial input include:

Start of new course FSC 430, Sensory Evaluation. Sophie Hummer (Ph.D of Sensory science and biometrics) of Brown Forman provided feedback on the course and helped set the course content to make the course meet industrial needs. Sophie will also teaches one lecture.

FSC 306 Food Processing goes to five industries (White Castle, Winchester Farms, Blendpak, Pillsbury and Smuckers) and FSC 304 travels to Dean Foods, Purnell Sausage, Sara Lee, Tyson, etc. All of these food companies give feed back on our students and most take student interns.

Survey of recent graduates.

Based on the University of Kentucky Online Graduate survey (completed in July 2009) we found that all but one of our recent graduates had found

a job in the Food Science field. The one former student still interviewing had graduated only a couple of months prior to the interview. The level of satisfaction with the Food Science program for the areas surveyed was generally high. While the specific areas of food chemistry, analysis, microbiology and engineering were reported to be strong, there were some areas that appear to need improvement. Areas that we will continue to focus on include helping students manage their time effectively, to work in teams, to develop their leadership/interpersonal skills, and to improve their verbal and written communication skills. The 2011 alumni survey is currently in progress.

Implementation of a New Course, Sensory Evaluation of Foods (FSC 430G).

Feedback from industry stakeholders (such as Sophie Hummer, Ph.D in Sensory science and biometrics with the Brown Forman Company) indicated the need for a sensory analysis course at the University of Kentucky. An application for a new sensory analysis course was submitted to the University of Kentucky's Undergraduate Council in September 2007. The application was approved on January 21, 2009 and this course will be taught beginning in the fall of 2010. Dr. Hummer provided feedback on the course and helped set the course content to meet industrial needs. Dr. Suman and Dr. Hicks will teach this course and Dr. Hummer (with Brown Forman) will also teach one lecture. See appendix No. 4 of this application for documentation of the new course application approval and the course outline (Appendix D).

Increased participation in Food Science Club activities: During the last 6 years the level of activity by both undergraduates and graduate student in club activities has greatly increased. Two areas that have shown the most activity are fund raising (particularly participation in the Food Science/Dairy booth at the Kentucky State fair) and philanthropic activities by the club. The Kentucky State fair activities involve 4-5 days where at least one faculty and 3-6 students leave Lexington about 5 am to arrive at the booth in Louisville and set up for a 12-hour day of providing both hot food and dairy products. Including the 1.5-hour drive each way and the clean-up of the booth, these typically result in a 16-hour day for all involved. Funds obtained from this activity are used for a variety of club activities including transportation and lodging at national IFT meetings. A number of Food Science Club members have donated their time and club resources to help local charities. Every year members will prepare breakfast for the Lexington Ronald McDonald House, which provides room and board for family of hospitalized children. The club also regularly performs food drives to support local food banks and fund raisers to for "Dance Blue" to support children's cancer research. All Food Science students are invited to monthly meeting held by the Blue grass section of the Institute of Food Technologist. During the October 2009 meeting 16 students attend the Suppliers Night meeting. Their involvement in the exhibition hall set-up and clean up raises about \$3000 for undergraduate Food Science scholarships at UK. The Food Science club arranged 3 additional tours at food industries in 2009.

Continued support for undergraduate research opportunities: On average the undergraduate program at the University of Kentucky has 20 - 40 percent of seniors participate in a for-credit research project (Special Problems in Food Science, FSC 395). This allows undergraduates to perform an independent research project under the supervision of a faculty member. A FSC 395 project provides the student with additional opportunities to employ critical thinking skills and to put their food science training into use. It also strengthens their understanding of research as a possible component of their career path. These project are continually be supported by acquisition of "state of the art" laboratory instrumentation obtained under the research component of our food science program.

Animal and Food Sciences

Appendix VII

Facilities and Equipment

Appendix VII-1
Lab Assignments in WP Garrigus Building
Updated September, 2011

Room	Description	PI in charge	PI contact info	
			Phone	E-mail
2nd floor				
216A	Sensory evaluation	Gregg Rentfrow Youling Xiong	7-7550 7-3822	Gkrent2@uky.edu ylxiong@uky.edu
216B	Kitchen (sensory prep)	Gregg Rentfrow Youling Xiong	7-7550 73822	Gkrent2@uky.edu ylxiong@uky.edu
216C	Instron room	Youling Xiong	7-3822	ylxiong@uky.edu
216D	Dairy chemistry	Clair Hicks	7-7538	clhicks@uky.edu
216E	Storage	James Matthews	7-7513	jmatthew@uky.edu
218	Animal physiology/ nutrition	James Matthews James Boling	7-7513 7-1546	jmatthew@uky.edu jboling@uky.edu
218A	Walk-in cooler	James Matthews	7-7513	jmatthew@uky.edu
218B	Animal physiology	Phil Bridges	7-4877	pbrid2@uky.edu
218C	Chemical storage	Phil Bridges	7-4877	pbrid2@uky.edu
218D	Image analyzer	James Matthews	7-7513	jmatthew@uky.edu
220	Animal physiology/nutrition	James Matthews	7-7513	jmatthew@uky.edu
220A	Cell culture	James Matthews	7-7513	jmatthew@uky.edu
221	Food microbiology	Melissa Newman	7-5881	mnewman@uky.edu
4th floor				
416	Food lipids/flavors	William Boatright	7-5988	wboat1@uky.edu
417	Food proteins	Youling Xiong	7-3822	ylxiong@uky.edu
418	Food proteins	Youling Xiong	7-3822	ylxiong@uky.edu
419	Meat pigments/proteomics	Surendranath Suman	7-3428	S.Suman@uky.edu
420	Office/storage	William Silvia/Susan Hayes	7-7545	wsilvia@uky.edu
421	Physiology	William Silvia	7-7545	wsilvia@uky.edu
6th floor				
616	Equine nutrition/health	Kristine Urschel Laurie Lawrence Robert Colemon	7-7748 7-7509 7-9451	klurschel@uky.edu llawrenc@uky.edu rcoleman@uky.edu
618	Swine nutrition Equine nutrition/health	Merlin Lindemann Mary Rossano	7-7524 7-7552	mdlind1@uky.edu Mary.Rossano@uky.edu
619	Physiology	William Silvia	7-7545	wsilvia@uky.edu
620	Walk-in cooler			
621	Poultry nutrition Swine nutrition	Austin Cantor Gary Cromwell	7-7531 7-7534	acantor@uky.edu gcromwel@uky.edu
8th floor				
816 (and A,B)	Beef nutrition	David Harmon Kyle McLeod Eric Vanzant	7-7516 7-2892 7-9438	dharmon@uky.edu kmcleod@uky.edu evanzant@uky.edu
818 (and A,B,C,D)	Beef nutrition	David Harmon/Kyle McLeod Eric Vanzant/Don Ely	7-2717	dely@uky.edu
820	Walk-in cooler			
821	Nutrigenomics	David Harmom Kyle McLeod	7-7516 7-2892	dharmon@uky.edu kmcleod@uky.edu
Basement	Meat lab	Gregg Rentfrow (Jim May)	7-7550	Gkrent2@uky.edu
Basement	Food/dairy processing lab	Clair Hicks	7-7538	clhicks@uky.edu

Appendix VII-2
Major AFS Research Equipment in Garrigus Building

Room	Item Description	Model Number
10	CYCLOTEC SAMPLE MILL	1093
10	WILEY MILLS	
44	MEAT INJECTOR 16 NEEDLE SMART TECH	MH-16
44	MAINCA BOWL CUTTER	CM-14
44	VACUUM PACKAGING MACHINE	600A
45	ALKAR DEHYDRATOR STAINLESS STEEL	E-075
45	SMOKEHOUSE	450
49	ROSS INPACK JUNIOR A10 MODIFIED AIR AND VACUUM PACKAGING MACHINE	A10
49	KYSOR/WARREN TYPE 1 RETAIL DISPLAY REFRIGERATOR	LD1C1-10UN
49	LUNAIRE 32 CF STEADY STATE TEST CHAMBER	CEO932-4
49E	MIXER GRINDER HOLYMATIC GMG175	175
49E	SUPER PATTY MACHINE HOLYMATIC	54
49E	BATTER AND BREADING MACHINE	500540
205	MINISCAN XE P;US SPECTROPHOTOMETER	45/0_I
208	SMOKER GRILL PORTABLE	
216C	PARAMETER GENERATION AND CONTROL 4.5 CF TEMPERATURE / HUMIDITY CONTROL CHAMBER	9141-1110
216C	INSTRON TEXTURE ANALYZER	4301
216C	SPRAY DRYER	BUCHI 190
216E	BECKMAN OPTIMA ULTRA CENTRIFUGE	XL-80
216E	TECHNE HYBRIDIZATION OVEN	HB-1D
216E	CELL HARVESTER W/TT-24 AND PUMP	M-24
216E	SORVAL SUPERSPEED REFRIGERATED CENTRIFUGE	RC5BPLUS
218	BECKMAN TL-100 ULTRACENTRIFUGE	TL100
218	PERKIN ELMER BIO ASSAY PLATE READER	N4501000
218	HP 5890 SERIES II GAS CHROMATOGRAPH	58G0AII
218	NANOPURE INFINITY WATER PURIFICATION SYSTEM	D8991

218	EPPENDORF MICROCENTRIFUGE 5415C	5415
218B	FIRSTLIGHT UV TRANSILLUMINATOR	
218B	MASTERCYCLER THERMAL CYCLER	EPPENDORF MASTERCYCL
218B	LEICA TRINOCULAR MICROSCOPE W/CAMERA	
218B	EPPENDORF REFRIGERATED CENTRIGUGE	5415R
218B	BIOSPECTRUM 410 IMAGING SYSTEM	
218B	CENTRIFUGE WITH ROTORS BECKMAN ALLEGR	21R
218B	RAININ REFRACTIVE INDEX DETECTOR	RI-1
218B	RAININ DYNAMAX ABSORBANCE DETECTOR	0205-9074
218B	DUPONT CENTRIFUGE REFRIGERATED	RC-5B
218B	EPPENDORF REALPLEX 2 SYSTEM THERMAL CYCLER	
218D	FILM PROCESSOR KODAK M35Z	M35A
220A	INCUBATOR FISHER CO2 SINGLE TC 115V	116885
220A, 221	LAMINAR FLOW HOODS	36208-04
221	PAC CHECK HANDHELD TRIPLE GAS ANALYZER	333
221	SYNERGY 4 HYBRID MULTIMODE MICROPLATE READER	U-54MLFPTAD
221	FLASH & GROW COLONY COUNTER SYSTEM	6010
221	INCUBATORS	51
221	GRADIENT THERMAL CYCLER EPPENDORF	5331
221, 416, 818	BUCHI ROTARY EVAPORATOR	R-215
221	CHARM LUMINATOR SYSTEM	400
221	SPECTROPHOTOMETER SPECTRONIC BIOMATE	BIOMATZ3
221D	AUTOMATED FILLING UNIT	
221E	STEAM STILL	A1213
221E	AUTOCLAVE AMSCO	
221F	EDDY JET AUTOMATIC PLATER FOR SPIRAL SPR	1701

221F	VITEK 2 COMPACT 30 CARD MICROBIAL ID SYSTEM W/BENC	
416	MICROBALANCE	C-34
416, 416B	HP GAS CHROMATOGRAPHS	G1800A
416	WATER ACTIVITY MEASURING SYSTEM	25991
416B	HPLC W/DIODE-ARRAY DETECTOR	1100
416, 416B	5890/5972 GC/MS; 6890N GC/FID; 6890/5973 GC/MS	
417	SHIMADZU SPECTROPHOTOMETER	UVMINI-1240
417	BOHLIN RHEOMETER	CVO
417	NANOPURE WATER PURIFICATION SYSTEM	D11911
417	TA INSTRUMENTS DIFFERENTIAL SCANNING CALORIMETER	DSC 2920
417	FLAKED ICE MACHINE	AFE424
418	DENSITOMETER LASER ULTRASCAN LKB DFH	
418	SPECTROFLUOROMETER FLUOROMAX 3	FLMAX-3
418	NANO DEBEE HOMOGENIZER	NANO 30
419	LABCONCO FREEZONE BULK TRAY DRYER	7806021
419	ISOTEMP CHROMATOGRAPHY REFRIGERATOR	13-986-1368A
419	OPTICAL BENCH UV SPECTROPHOTOMETER	UV-2401 PC
419	SHIMADZU COMPACT TABLETOP TEXTURE ANALYZER EZ TEST	5 500N
419	AMERSHAM FRACTION 920 COLLECTOR	FRAC-920
419	FAT & MOISTURE ANALYZER	HFT2000
419	WATERS ALLIANCE HPLC WITH FLUORESCENCE AND PDA DETECTORS	SM4
419	TEMPERATURE CONTROLLER PELTIER	89090A
419	ANALYZER BRIDGE O2/CO2/CO	
419	HUNTER ASSOCIATES AND MINOLTA COLORIMETERS	
421	NIKON LABOPHOT 2 LIGHT MICROSCOPE	
421	SORVALL HIGH SPEED REFRIGERATED CENTRIFUGE	RC 5B
421	MICROPHOT FXA MAIN BODY	FXA

421	MICROPLATE READER, DYNATECH	MR5000
616	ALLIANCE HPLC SYSTEM WITH UV/VIS AND FLUORESCENCE DETECTORS	2695
616	LABCONCO 4.5L BENCHTOP FREEZE DRY SYSTEM	7750020
616	YSI SINGLE CHANNEL BIOCHEM ANALYZER	27005
616	SPECTROPHOTOMETER	80-2097-6Z
616	MOLECULAR DEVICES MICROPLATE READER	VERSAMAX
616	SORVALL LOW SPEED REFRIGERATED MICROCENTRIFUGE	21R
616	GENESYS 10S UV-VIS SPECTROPHOTOMETER	
618	ZEISS AXIO SCOPE A1 HAL50	A1 HAL50
618	THERMAL SCIENTIFIC SORVALL ST16TC 16/36 CENTRIFUGE	ST16
618	CROSSHEAD METRIC INSTRON	0
618B	SOXTEC HT12-2 PCS EXTRACTION SYSTEM	TECATOR
619	TRI-CARB LIQUID SCINTILLATION COUNTER	
619	DUPONT REFRIGERATED CENTRIFUGE	RC-3B
621	BOMB CALORIMETER SYSTEM2	1261EA
814	PORTABLE ULTRASOUND SYSTEM	DP2200VET
816	CENTRIVAP ACID CONCENTRATION SYSTEM	78100-00
816	NANOPURE WATER PURIFICATION SYSTEM	D4751D4751
816	TRANSONIC 400 BLOOD FLOWMETER	TS4-02
816A, 818	SPECTROPHOTOMETER WITH SIPPER UNIT	UV-160U
816A	KNOELAB 20 XTI CLINICAL CHEMISTRY ANALYZER	20XTI
816B	PERKIN ELMER ANALYST 200 ATOMIC ABSORPTION SPECTROMETER	B3150070
818	LABCONCO GLASSWARE DISHWASHER	LCF44204A
818	ISOTEMP VACUUM OVEN	ISOTEMP
818	ANKOM GAS PRODUCTION DETECTION SYSTEM	RFS
818, 616	MUFFLE FURNACE 1.26 CF	

818	CIRCULATING AIR OVEN, DOUBLE DOOR W/6 SHELVES	VWR1680
818	ZEISS IM-35 INVERTED MICROSCOPE	377
818	BOMB CALORIMETER	1281
818	TECATOR IN VITRO DIGESTOR 2520	10014133
818A	WATERS ALLIANCE HPLC SYSTEM WITH FLUORESENCE AND PDA DETECTORS	SM4
818A	WATERS FRACTION COLLECTOR II	WFC
818A	AUTO ANALYZER II	SCIC
818C	ANKOM FIBER ANALYZERS	A200
818D	VARIO MAX CARBON/NITROGEN ELEMENTAL ANALYZER	VARIO MAX
818D	HP 6890 GAS CHROMATOGRAPHS	G1530A
821A	BECKMAN INDUCTION DRIVE CENTRIFUGE	J2-21M
821C	METTLER AUTOMATIC TITRATOR	DL67

Animal and Food Sciences

Appendix VIII

Faculty Curriculum Vitae

FACULTY RESUME (2005-2011)

Name: Debra K. Aaron

Rank: Professor

Year of First Appointment: 1984

Specialization: Animal Breeding/Genetics

Distribution of Effort: Teaching: 75%
Research: 25%

Academic Background: Ph.D. Oklahoma State University
M.S. University of Kentucky
B.S. University of Kentucky

Committees, Awards, Offices

Elected/Appointed Offices: Director-at-Large, American Society of Animal Science (ASAS), 2009-2012 (3 yr)
Vice-President, National Block and Bridle Club, 2010-2012 (2 yr)
Editor, National Block and Bridle Club, 2006-2010 (2 yr)
Associate Editor, ASAS Educator's Toolbox
Editorial Board, HoofPrint ... *The Small Ruminant Magazine*, 2010-present

Awards: Advanced Degree Graduate of Distinction Award, Department of Animal Science, Oklahoma State University, 2010
Research Activity Award, University of Kentucky College of Agriculture, 2009

Committees: Production, Education and Research Council, American Sheep Industry Association, 2010-2012
Ad Hoc Communications Committee, ASAS, 2010-2012
Graduate Paper Competition Committee, Southern Section ASAS, 2008-2012 (Chair)

Teaching and Advising

Undergraduate Advisees: 32

Graduate Advisees: 1 (M.S.)

Number of Graduate Committees: 5 (M.S)

Courses Taught: ASC 102: Applications of Animal Sciences (3 hr, Spring)
ASC 362: Animal Genetics (4 hr, Spring)
STA 570: Basic Statistical Analysis (4 hr, Fall)
STA 671: Regression and Correlation (2 hr, Spring until 2011)
STA 672: Experimental Design (2 hr, Spring until 2011)

Teaching, Research and Extension Publications

Refereed Journal Articles: 2
Abstracts: 17
Conference Proceedings: 1
Invited Presentations: 8
Popular Press: 7
Websites: 1

Funding Support (2005-2011)

Internal-Competitive:	\$ 64,782 (PI)
	\$113,356 (Co-PI)
	\$178,138 (Total)
External-Gift:	\$36,000 (Co-PI)
Total Funding:	\$214,138

Summary of Teaching and Research Accomplishments:

Teaching: New courses have been developed and taught. The goal of ASC 102 (Applications of Animal Sciences) is to provide students with an introduction to the animal agriculture industries. New material has been developed and existing material has been updated. Beginning spring semester, 2011, teaching responsibilities expanded to include ASC 362 (Animal Genetics). A significant amount of time has been devoted to preparing and teaching this course for the first time. The goal is to provide students with a background in quantitative genetics supplemented with genomics. Up until Spring, 2011, teaching responsibilities included STA 570 (Basic Statistical Analysis), STA 671 (Regression and Correlation) and STA 672 (Experimental Design), so much effort was directed towards maintaining and improving those courses. Currently, only STA 570 is included in teaching responsibilities. Working with Block and Bridle, on the local and national level, has been an important part of the association with undergraduates.

Research: This program uses sheep at the C.Oran Little Research Center and beef cattle at the Eden Shale Farm to conduct research in breeding and genetics that will benefit producers. The main accomplishments are: 1) Development of a registered flock of White Dorper sheep through incorporation of hair sheep germplasm into a flock of Polypay ewes; 2) Implementation of procedures for managing infection of *Haemonchus contortus* (stomach worms) in sheep; 3) Development of strategic supplementation programs for increasing efficiency of cows and calves grazing endophyte-infected fescue.

Future Goals:

Teaching: Future goals include: 1) Continue to develop instructional techniques and materials for teaching undergraduate and graduate courses, improve PowerPoint® slides and supplemental material; 2) Expand use of electronic media in the classroom; 3) Extend educational experiences of undergraduates through extracurricular activities such as Block and Bridle and livestock-oriented internships.

Research: Future goals include: 1) Further improve Polypay, White Dorper and Hampshire genetics through use of genetic evaluations (National Sheep Improvement Association/LambPlan); 2) Continue to study management strategies for both intensive and extensive sheep production systems and conduct producer-oriented research in those areas; 3) Continue the search for an effective management strategy for alleviation of fescue toxicosis in beef cattle.

FACULTY RESUME (2005-2011)

Name: Donna M. Amaral-Phillips
Year of First UK Appointment: 1988
Average % DOE Research: 0%

Academic Rank: Extension Professor
Specialization: Nutrition
Teaching:

Extension: 100%

Academic Background

<u>Degree</u>	<u>Institution</u>
1. Doctorate of Philosophy	Iowa State University
2. Master of Science	North Carolina State University
3. Bachelor of Science	University of Connecticut

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. American Dairy Science Association- Director for National ADSA Production Division
2. American Dairy Science Association- President of Southern Branch
3. North American Intercollegiate Southern Dairy Challenge: Chair of Southern Dairy Challenge Oversight Committee, host co-coordinator
4. Extension Dairy Executive Council- Director. This council provides direction and information to national program leaders within CREES/NIFA to help in the promotion of the merits and impact of dairy extension faculty activities.

Awards

1. Distinguished Alumni Award from the Univ. of CT College of Agriculture and Natural Resources (2010)

Committees

1. Project Team Leader for DAIReXNET-national extension web resource (see programs for details)
2. Senior coordinator for North American Invitational 4-H Dairy Quiz Bowl
3. Dairy Extension Coordinator Department of Animal and Food Sciences
4. Advisor to UK Undergraduate Dairy Club
5. University Extension Area Committee
6. Numerous UK Ag committees for extension

Teaching, Research or Extension Publications (numbers only)

	2005	2006	2007	2008	2009	2010	Aug.2011	Total
Numbered Extension Publications	1	2		1				4
Unnumbered Fact Sheets	10	9	13	9	6	9	5	61
Articles at UK Dairy Website								89
Popular Press	6	1	5	6	3	2	4	27
Radio/TV	6	5	6	5	4	4	5	35
CD/DVD	1			1				2
Research Reports/Proceedings	3	3						6
Abstracts				1		1	1	3
Spreadsheets						1	1	2

Funding Support (2005-2011) Total funding- PI= \$818,302, Co-PI = \$38,300

1. Master Grazer Educational Program for Beef, Dairy, Sheep and Goats (funded 2005-2011-\$612,854- PI)
2. DAIReXNET: Total: \$205,448, (a) DAIReXNET (\$127,500 – PI – competitive) from National eXtension Initiative. D.M. Amaral-Phillips (PI), A. J. McAllister (UK), and other faculty from the Univ. of GA, MD, ID, and IL, Penn State, and NC State. and (b) USDA-AFRI Competitive Grant- (DAIReXNET (UK) subcontract 2 grants total amount \$77,948- PI) “Improving fertility during heat stress in lactating dairy cows” and “An integrated approach to improving dairy cow fertility”.
3. Beef Quality Assurance: Total \$8300
4. Dairy Extension Programs – Industry Gifts to support programs \$30,000

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

1. **DAIReXNET—Launched Oct. 2007:** DAIReXNET, a national, extension-driven web resource, is designed to meet the educational and decision-making needs of dairy producers, allied industry partners, extension educators and consumers. Through collaboration amongst dairy professionals, relevant, cutting-edge information and learning opportunities are provided which are science-based and peer-reviewed in a format accessible 24/7. Informational resources include (1) answers to frequently asked questions (423 FAQ's), (2) access to information by top experts in their fields of expertise (219 questions answered), (3) access to cutting-edge content currently in 13 subject areas (384 pieces of content available), (4) 13 learning modules, (5) 8 webinars presented live than archived (Topics include ways to improve public perception of dairies, mastitis control, managing transition dairy cows, and 3 webinars on environmental issues related to nitrogen, phosphorus and air quality issues), (6) searchable state and regional newsletters, (7) consumer links about the dairy industry and its products, and (8) news and lists of upcoming extension programs.
Leadership for this project is provided by 11 dairy extension professionals from across the United States. Additionally, our subject areas are led by 13 dairy experts from across the country. To date, 343 dairy professionals representing 40 universities and many allied industries have contributed to this resource. From April 1, 2009 through August 15, 2011 (dates Google Analytics are available), 727,931 pages have been viewed with an average of 14,128 unique visitors per month with people spending an average of 2:23 minutes per article/page. On average, each of our webinars has been viewed an average of 518 times. DAIReXNET and can be accessed through the following web address: (<http://www.extension.org/dairy+cattle>).
2. **Master Grazer Educational Program:** This program is a collaborative effort between UK agronomy, animal sciences, and National Resources Conservation Service (NRCS) to educating producers and extension and NRCS personnel on ways to improve the utilization and quality of grazed forages. This program has included (1) educational programs (4 to 7, 3-hr sessions / location) conducted at 24 locations for 730 producers, (2) 30 demonstration herds located throughout KY, (3) 4 - 2-day intensive KY Grazing Schools, (4) 8 locations for applied master grazer sessions on farms illustrating concepts, (5) development of producer grazing networks, and (6) expansion of training opportunities for agricultural agents and NRCS personnel (3 sessions held).
3. **Dairy Nutrition and Feeding Mgt Programming:** The KY Dairy Industry has undergone several financial (high feed costs and/or low milk prices) and weather related challenges within the last few years. These challenges definitely have negatively impacted the profitability and thus survivability of dairy farms in Kentucky and across the US. To help dairy farmers survive these challenges, we have conducted regional meetings, written peer-reviewed, newsletter articles published in electronic format on-line and provided to KY Extension Educators for use in local newsletters, radio programs and newspaper articles. In addition, I have answered farmer's individual questions regarding feeding programs and implementation of sound, balanced rations for both the dairy milking herd and replacements.
4. **Dairy Challenge** is a scholastic completion where undergraduates evaluate a dairy operation and develop and present their recommendations for ways to improve this operation. To prepare for this competition, teams have visited 5 to 10 dairy farms and prepared recommendations for these farms. Farmers were pleased with the visits and their neighbors are wanting to be part of the program. This program represents an integration of extension and instruction areas of the land-grant mission of universities at the same time training future dairy leaders.
5. **Dairy Production Shortcourses:** These intensive series of one-day programs are designed to help dairy producers learn more about implementation of sound production practices while they develop friendships and learn from one another. The farmers design these programs with the help of their county extension agents and state extension specialists. Each year the farmers have chosen 3 areas for a winter educational series.

Goals for Next Five Years in Extension: Expansion of programs in (1) Dairy Advancement Institute- Newly designed educational program for Amish/Mennonite families on understanding various concepts important in dairy production and forage management, (2) on-farm evaluation of feeding systems, (3) helping dairy producers understanding production records (formally AJM's educational responsibility.)

FACULTY RESUME (2005-2011)

Name: Leslie H. Anderson

Academic Rank: Professor

Year of First UK Appointment: 1997

Specialization: Extension

Average % DOE

Research: 0

Extension: 90

Teaching: 10

Academic Background

Degree	Institution
1. B.S.	University of Missouri
2. M.S.	Iowa State University
3. Ph.D.	The Ohio State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Southern Region Extension Committee - Chair
2. IEG-72 Chair
3. Southern Region Ruminant Animal Production Committee - Chair

Awards

1. Southern Section Young Educator Award (2007)
- 2.
- 3.

Committees

1. Beef Cattle Clearinghouse 2006-present
2. Beef Reproduction Action Team 2005 - present
3. SRIEG-72
4. Southern Region Extension Committee – 2006-2008
- 5.

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 0

Number of graduate students graduated: 0 M.S.: Ph.D.:

Number of graduate committees (excluding your students) M.S.: Ph.D.: 1

Courses Taught

ASC 364	Spring 2010, Spring 2011
ASC 406	Fall 2010, Fall 2011; team taught with Drs. Bullock and Lehmkuhler
ASC 601	Fall 2010; team taught with Dr. McCleod

Teaching, Research or Extension Publications (numbers only)

ES Refereed Journal Articles: 3	Invited Presentations: 22
Abstracts: 3	Fact Sheets:
Book Contributions:	Posters:
Conference Proceedings: 2	Popular Magazines: 42
Numbered Extension Publications: 7	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites): 79

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI: \$732,300
As Co-PI: \$1,248,118
Subtotal: \$1,980,418

External – Gift

As PI:
As Co-PI:
Subtotal:

Total funding received: \$1,980,418

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Integrated Resource Management (IRM). Chair (2004 to present) of the core IRM coordinating committee responsible for integration of IRM concepts into beef cattle production in Kentucky. The IRM concept includes evaluation of beef production and profitability by determining how cattle production is influenced by all factors of the farming operation. Collaborate with Plant Science, Agriculture Engineering, Agricultural Economics, and the LDDC.

Master Cattleman. Major educational program for beef producers in Kentucky. Master Cattleman consists of 10, 4-hour sessions in which beef producers are taught most aspects of beef production principles and practices. Collaborate with Plant Science, Agriculture Engineering, Agricultural Economics, and the LDDC.

Beef Cattle Clearinghouse. Co-Leader in a national effort to provide easy internet access to quality beef production educational materials from across the United States. National effort with collaboration between UNL, KSU, SDSU, OkSU, UTN, and NDSU.

Reproduction Action Team. Member of the national Reproduction Action Team. This committee consists of Extension Specialists, veterinarians, and industry professionals from across the country. The Reproduction Action Team developed the symposium entitled *Applied*

Reproductive Strategies in Beef Cattle. This symposium has been presented at 15 different sites reaching all geographical regions of the US. The purpose of these symposia was to educate beef producers, veterinarians, and industry professionals on the latest reproductive management protocols and how to incorporate these protocols into a production scenario. National effort with collaboration between MU, UFL, UNL, KSU, SDSU, UTN, CSU, VTU, and NDSU.

Allied Production and Management (A.I.M.). The A.I.M. program encourages producers to form production and marketing alliances in order to take advantage of economies of size and to increase marketability by cooperative sales. Duties include county meetings and farm visits to provide producers with information necessary to form a production and marketing alliance.

Kentucky Heifer Development Program (KHDP). Program designed to assist beef producers by establishing heifer development centers and heifer development sales. The centers are responsible for nutritional, health and reproductive management of the heifers. Producers then select their replacement heifers and the remaining are sold in a cooperative sale. Producers also participate in educational programs to become familiar with the development techniques.

Advanced Master Cattleman. The Advanced Master Cattleman program is designed for producers who want a level of education above the Master Cattleman curriculum. The goal of Advanced Master Cattleman is to move these producers to the next level of beef production. The intent of Advanced Master Cattleman is to actually change producer behavior rather than just provide information. In general, Advanced Master Cattleman sessions will be more in-depth, and in appropriate subject areas, may also be more hands-on. Each interested multi-county Advanced Master Cattleman group will choose topics that are needed most in their area. Therefore, the topics covered in each area will not necessarily be the same. Collaborate with Plant Science, Agriculture Engineering, Agricultural Economics, and the LDDC.

Applied Beef Production Practices. Often, producers learn best when they apply the protocols discussed in class. On-farm demonstrations have been developed to help illustrate the production and economic advantages of applying proper beef and forage production practices. Short-, moderate-, and long-term projects have been developed by UK Specialists as templates for local use. The producer, ANR Agent, KBN Facilitator, and UK Specialist will implement the project then document the impact on production and profitability. These demonstrations will provide opportunity for hands-on training in a real-world environment while collecting valuable data to document the impact of our programs. Collaborate with Plant Science, Agriculture Engineering, Agricultural Economics, and the LDDC.

Cow College. Cow College was the first producer-oriented advanced training session in Kentucky. Cow College is a 9-day instructional event that includes both hands-on and lectures on all aspects of beef cattle production. The course is divided into five separate sessions. The sessions included training in beef cattle nutrition, health management, working facilities, economics, beef cattle breeding, reproductive management and live animal and carcass evaluation.

Management and Genetics (MAG) – 60. Newly funded program designed to increase the use of estrus synchronization and AI in commercial cow-calf operations. The cost of ESAI will be shared (12,000 females over 3 breeding seasons) and the AI-sired progeny will be cooperatively marketed as age-, source-, and genetically-verified performance calves.

Goals for Next Five Years

Teaching: Work with Drs. Bullock and Lehmkuhler to develop Beef Cattle Science into a course that helps teach the students how to incorporate science into the production of beef cattle.

Research: Continue to conduct applied research that will support my extension programs.

Extension: Increase our web-based educational content and instructional abilities. Continue to develop new educational opportunities to keep our producers at the forefront of the industry and to cement Kentucky's status as the number one feeder calf state in the US.

FACULTY RESUME (2005-2011)

Name: Jeffrey M. Bewley

Academic Rank: Assistant Extension Professor

Year of First UK Appointment:2008

Specialization: Dairy Systems Management

Average % DOE

Research: 0

Extension:90

Teaching:10

Academic Background

Degree	Institution
1.PhD	Purdue University
2.MS	University of Wisconsin-Madison
3.BS	University of Kentucky

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Farm Animal Integrated Research (FAIR) 2012 Planning Committee
2. SERA15: Competitiveness and Sustainability of the Southern Dairy Industry (Southern Dairy Conference), Chairman, 2011
3. Southern American Dairy Science Association Secretary-Treasurer, 2011-2012

Awards

1. College of Agriculture Early Career Outstanding Teacher Award, 2011
2. Midwest American Dairy Science Association Young Dairy Scholar, 2008

Committees

1. First North American Conference on Precision Dairy Management Planning Committee, 2010
2. NC1042: Management Systems to Improve the Economic and Environmental Sustainability of Dairy Enterprises, 2009-present
3. Kentucky Dairy Development Council Education Committee, 2008-present
4. Southeast United Dairy Industry Association Scientific Advisory Board, 2008-present
5. Kentucky Dairy 2020 Vision Congress Planning Committee, 2010

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 5

Number of graduate students graduated: M.S.: 0 Ph.D.: 0

Number of graduate committees (excluding your students) M.S.: 3 Ph.D.: 1

Courses Taught

ASC 783/GEN 300: Integrated Dairy Production Systems Assessment

ASC 420G: Dairy Cattle Science

ASC 382: Livestock Production Principles

ASC 205: Livestock, People, and Their Interactions

GEN 302: International Study Abroad: Scotland Dairy

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 9	Invited Presentations:15
Abstracts: 34	Fact Sheets: 6
Book Contributions: 0	Posters:0
Conference Proceedings: 4	Popular Magazines:32
Numbered Extension Publications:0	Patents/Genbank Register:
Reports of Progress:0	Other (e.g. websites):28

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$61,823

As Co-PI:

Subtotal: \$61,823

External – Competitive

As PI:

As Co-PI: \$10,305

Subtotal: \$10,305

External – Gift

As PI: \$298,847

As Co-PI:

Subtotal: \$298,847

Total funding received: \$370,975

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Since joining the faculty in 2008, I have worked to establish a nationally recognized program in dairy systems management with combined efforts in extension, teaching, and research. My extension program has focused on improving dairy cow housing environments, reducing on-farm somatic cell counts, increasing the adoption of technologies on dairy farms, and improving the economic sustainability of Kentucky dairy farms. My teaching program has expanded to include four courses where I attempt to incorporate real-world experiences into the classroom and in varied extra-curricular activities. My research program is focused primarily on the use of Precision Dairy farming technologies and the improvement of dairy cow housing environments. In each case, I try to take advantage of the natural synergies among the three land grant missions.

Goals for Next Five Years

Teaching: Increase enrollment in courses, particularly graduate level courses. Increase participation in the UK Dairy Club and internships. Continue involvement with international study abroad trips.

Research: Obtain external funding for Precision Dairy and housing research.

Extension: Increase the use of decision support tools among dairy producers. Improve dairy cattle housing in Kentucky. Reduce on-farm SCC.

FACULTY RESUME (2005-2011)

Name: William L. Boatright

Academic Rank: Professor

Year of First UK Appointment: 1995

Specialization: Food Chemistry

Average % DOE

Research: 75

Extension: 0

Teaching: 25

Academic Background

Degree Institution

1. Bachelor of Science in Food Science, University of Washington, June 1990
2. Master of Science in Food Science, University of Arkansas, May 1992
3. Doctorate in Food Science, University of Arkansas, August 1994

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Food Science Group Leader, Department of Animal & Food Sciences (2009-Current)

Awards

1. Univ. of Kentucky Excellence in Research, Wethington Awards, 2005-07, 2009-10

Committees

1. Search Committee Chair, Food Science Research/Teaching faculty (Alderton) 2005-06.
2. Search Committee member, Food Science Extension/Teaching faculty (Mikel) 2005-06
3. Member of the Animal & Food Sciences Laboratory Safety Committee, 2007

Teaching – Advising:

Total number of undergraduate advisees: 0

Total number of graduate advisees: 1

Number of graduate students graduated: 1 M.S.: 0 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.: 7

Number of post-doctoral scholars: 1

Courses Taught:

FSC 535 Food Analysis (4 hrs.) – teach every fall semesters.

FSC 434 Food Chemistry (4 hrs.) – teach every other spring semester (even years).

FSC 640 Food Lipids (3 hrs.) – teach every other spring semesters (odd years).

FSC 399 Experimental Learning in Food Sciences (3 hrs.) – taught one student in 2009.

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 11	Invited Presentations: 0
Abstracts: 10	Fact Sheets: 0
Book Contributions: 1	Posters: 4
Conference Proceedings: 0	Popular Magazines: 0
Numbered Extension Pubs: 0	Patents/Genbank Register: 1
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: 0; As Co-PI: 0

Subtotal: 0

External – Competitive: 2 USDA NRI grants

As PI: \$622,972; As Co-PI: 0

Subtotal: \$622,972

External – Gift

As PI: 0; As Co-PI: 0

Subtotal: 0

Total funding received: \$622,972 (\$149,992 was a sub-contract to the Univ. of Memphis)

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Since 2004 my research program has received three (3) back-to-back-to-back USDA-NRI grants. This series of nationally competitive grants is the result of continued development of novel research concepts followed-up with the implementation of a productive research program with novel findings that have lead to new discoveries. We are currently on the third year of a three-year NRI project in collaboration with Dr. M. Shah Jahan, Chair of the Physics Department at the University of Memphis. This multidisciplinary approach has proven to be extremely beneficial in the development of novel ideas and approaches to explain the development and behavior of free radicals in foods.

The food science program at the University of Kentucky provides an Institute of Food Technologist (IFT) accredited curriculum. Not only does the IFT accreditation process assure coverage of fundamental food science components, it stresses numerous disciplines critical to producing a well-rounded professional graduate. In order for students to apply for an IFT undergraduate scholarship they must be enrolled in and accredited program. As the Food Science group leader since March 2009, I was responsible for organizing and completing the extensive application, and meeting with the IFT Higher Education Review Board. In May of 2010, the UK Food Science program received IFT accreditation for another 6 years. Also, during this period we have made significant progress toward improving the awareness of the food science discipline among Kentucky's high school students.

Goals for Next Five Years

Teaching: To maintain levels of undergraduate Food Science enrollment between 30 and 50, and continue to develop and update the UK undergraduate food science program.

Research: Maintain the currently level of nationally competitive funding, quality of research accomplished, and graduate and post-graduate training.

Extension: N/A

FACULTY RESUME (2005-2011)

Name: James A. Boling

Academic Rank: Professor

Year of First UK Appointment: 1967

Specialization: Beef Cattle Nutrition and Metabolism

Average % DOE

Research: 94.0

Extension: n/a

Teaching: 6.0

Academic Background

Degree	Institution
1. B.S.	Clemson University, Clemson, SC
2. M.S.	University of Wisconsin, Madison, WI
3. Ph.D.	University of Wisconsin, Madison, WI

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. - - -
2. - - -
3. - - -

Awards

1. Fellow, American Society of Animal Sciences.
2. Sturgill Award for Contributions To Graduate Education – UK.
3. Thomas Poe Cooper Research Award.

Committees

1. University Joint Committee on Honorary Degrees.
2. College of Agriculture Appointment, Promotion and Tenure Committee.
3. Department of Animal and Food Sciences Promotion Committee.
4. Chair, Director of Gluck Equine Research Center Search Committee.
5. Chair, Graduate Student Award Committee, Gamma Sigma Delta.

Teaching – Advising

Total number of undergraduate advisees: None

Total number of graduate advisees: Co-advisor - 1

Number of graduate students graduated: Co-advisor M.S.: 1 Ph.D.:

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.: 5

Courses Taught

ASC 771 – Graduate Seminar in Animal and Food Sciences

Taught course every semester from Spring 2005-Fall 2011, except Spring 2007. (Total semesters taught = 13).

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 8	Invited Presentations: 4
Abstracts: 31	Fact Sheets: -
Book Contributions: -	Posters: -
Conference Proceedings: 2	Popular Magazines: -
Numbered Extension Publication: -	Patents/Genbank Register: 40
Reports of Progress: 6	Other (e.g. websites): 2

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:
As Co-PI: \$582,564
Subtotal: \$582,564

External – Competitive

As PI: -
As Co-PI: -
Subtotal: -

External – Gift

As PI: -
As Co-PI: -
Subtotal: -

Total funding received: \$582,564

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Since returning to the faculty, my teaching responsibility has been ASC 771 – Graduate Seminar. I have worked at helping students master the skills of researching a topic, review the literature and communicate the data to an educated audience in a successful manner.

The research conducted since 2004 has included Age Related Influences on Nutrient Metabolism in Beef Cows, Effects of Toxic Fescue Alkaloids on Metabolic Responses in beef Cows and Grazing/Growing Steers. Also, a collaborative development of a Calan gate feeding system at Princeton has resulted in excellent results in cattle fed individually but managed in a group system. My collaborators have been Dr. Jamie Matthews and Dr. Roy Burris.

Goals for Next Five Years

Teaching: Continue to teach the Graduate Seminar and work with other graduate students to develop research and communication skills.

Research: Continue current research projects in the areas designated above and amplify the research program through additional funding and collaboration.

Extension: N/A

FACULTY RESUME (2005-2011)

Name: Phillip Bridges

Academic Rank: Assistant Professor

Year of First UK Appointment: 2011 (July)

Specialization: Reproductive Biology

Average % DOE

Research: 77

Extension: 0

Teaching: 23

Academic Background

Degree	Institution
1. B.Sc.Agr.	University of Sydney, Australia
2. M.S.	University of Hawaii
3. Ph.D.	West Virginia University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. -
- 2.
- 3.

Awards

1. -
- 2.
- 3.

Committees

1. -
- 2.
- 3.
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 0

Number of graduate students graduated: M.S.: 0 Ph.D.: 0

Number of graduate committees (excluding your students) M.S.: 0 Ph.D.: 0

Courses Taught 0

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 0	Invited Presentations: 0
Abstracts: 0	Fact Sheets: 0
Book Contributions: 0	Posters: 0
Conference Proceedings: 0	Popular Magazines: 0
Numbered Extension Publications: 0	Patents/Genbank Register: 0
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI:
As Co-PI: R01 HD061617-01A2, 5% effort = \$3850 per year (Total costs per year: \$248,534)
K12 DA014040-11, \$13,000 to the PI for animals and supplies
Subtotal: 3850 + 13,000 = \$16,850

External – Gift

As PI:
As Co-PI:
Subtotal:

Total funding received: \$16,850

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Two research proposals are currently pending review at NIH
One manuscript is being prepared for publication
IACUC approval for the use of domestic animals for research is approved
One HATCH proposal is being prepared for submission
Discussions are underway for inclusion on one multi-state regional project
One graduate student has tentatively accepted placement in the PIs lab for graduate studies (Ph.D.) in A&FS, pending completion of M.S. in Veterinary Science.

Goals for Next Five Years

Teaching: ASC 364, Sections 001, 002 and 003. Reproductive Physiology of Farm Animals. Delivered each Spring semester. Expand teaching responsibilities with the needs of the Dept.

Research: Develop an extramurally funded research program addressing the regulation of fertility in domestic species. Train/mentor graduate and undergraduate students.

Extension: Contribute with the needs of the Dept. and College.

FACULTY RESUME (2005-2011)

Name: K. Darrh Bullock

Academic Rank: Extension Professor

Year of First UK Appointment: 1992

Specialization: Beef Cattle Genetics

Average % DOE

Research:

Extension: 96%

Teaching: 4%

Academic Background

Degree	Institution
1. PhD	University of Georgia
2. MS	Auburn University
3. BS	Auburn University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Board of Director – National Beef Cattle Evaluation Consortium
2. Coordinator of Education Programming – National Beef Cattle Evaluation Consortium
- 3.

Awards

1. Whiteker Award for Excellence in Extension
2. Continuing Service Award – Beef Improvement Federation
- 3.

Committees

1. College Promotion and Tenure Committee
2. Department Awards Committee
3. College Integrated Resource Management Committee
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees:

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.:

Ph.D.:

Courses Taught

ASC 406 – Beef Cattle Science

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 1	Invited Presentations: 14
Abstracts: 2	Fact Sheets: 1
Book Contributions:	Posters:
Conference Proceedings: 2	Popular Magazines: 3
Numbered Extension Publications: 7	Patents/Genbank Register:
Reports of Progress: 2	Other (e.g. websites): 2

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI: \$557,060
As Co-PI: 1,616,338
Subtotal: \$2,173,398

External – Gift

As PI: \$6,424
As Co-PI:
Subtotal: \$6,424

Total funding received: \$2,179,822

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

The overall objective of my Extension efforts is to make Kentucky beef producers more profitable through better beef cattle genetic practices. I coordinate three programs/projects and I have a major role in four others. The Cattle Genetic Improvement Program, which I co-developed and wrote the beef genetic guidelines, was selected by the Kentucky Ag Development Board as the first “Model Program” for county funding. In the most recent year with information reported (FY2008); \$804,234 were distributed for cattle genetic purchases (bulls, heifers and semen) in 23 counties. I co-coordinate a new, major educational effort for ANR agents that allow them to become “Certified in Beef Cattle Production”. I am heavily involved in the extremely successful Master Cattleman Educational Program. I have been actively involved, as PI or Co-PI, in securing over \$2 million dollars in program funding. I serve as the Beef Group Coordinator and Extension Coordinator. I recently took responsibility for instruction of the Beef Cattle Science class (ASC 406).

Goals for Next Five Years

Teaching: Continue teaching ASC 406

Extension: Continue to seek funding to support Extension programs. Continue working with college’s IRM committee to provide holistic beef cattle educational programming to Kentucky beef producers. Continue providing Beef Cattle Certification efforts for ANR agents.

FACULTY RESUME (2005-2011)

Name: Walter Roy Burris

Academic Rank: Extension Professor

Year of First UK Appointment: 1981 **Specialization:** Beef cattle nutrition

Average % DOE **Research:** **Extension:** 100 **Teaching:**

Academic Background

Degree	Institution
1. Ph.D.	University of Kentucky
2. M.S.	University of Kentucky
3. B.S.	Tennessee Technological University

Awards

1. Fellow – American Society of Animal Science
2. Extension Award – Southern Region, American Society of Animal Science
3. Outstanding Program Award – Kentucky Association of Extension Professionals

Committees

1. Mid-South Stocker Association
2. University of Kentucky College of Agriculture Diversity Committee
- 3.
- 4.
- 5.

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:	3	Invited Presentations:	16
Abstracts:	12	Fact Sheets:	
Book Contributions:	1	Posters:	
Conference Proceedings:	3	Popular Magazines:	
Numbered Extension Publications:	5	Patents/Genbank Register:	
Reports of Progress:	4	Other (e.g. websites):	

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI: \$ 812,860
As Co-PI: \$ 920,787
Subtotal: \$1,733,647

External – Gift

As PI: \$5,500
As Co-PI: _____
Subtotal: \$5,500

Total funding received:

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Part of interdisciplinary team that has developed Master Cattleman, Advanced Master Cattleman, Master Grazer, Master Stocker and Mid-South Stocker programs.

Research has focused on By-product utilization, forage systems and selenium supplementation of beef cattle.

Goals for Next Five Years

Teaching:

Research: More intensive research with trace element nutrition.

Extension: Delivery of “cutting edge” programs in beef management and grazing technology.

CAMARGO FACULTY RESUME (2005-2011)

Name: Fernanda C. Camargo

Academic Rank: Assistant Professor

Year of First UK Appointment: 2007

Specialization: Equine Extension Specialist

Average % DOE

Research: 0%

Extension: 80%

Teaching: 20%

Academic Background

Degree	Institution
1. Ph.D.	University of Kentucky
2. Doctor of Veterinary Medicine	Universidade Estadual de Londrina - Brazil

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. American Youth Horse Council – Board of Directors (2008-present), Chair and Host of 2010 AYHC National Symposium.
2. Kentucky Horse Council – Board of Directors (2009-present)
3. Eastern National 4-H Horse Roundup – Board of Directors (2007-present)

Awards

1. Employer Partner of the Year, awarded by James Stuckert Career Center - 2009

Committees

1. American Youth Horse Council – Symposium committee and Publications committee
2. Eastern National 4-H Horse Roundup – Chair of Facilities and Logistics; Hippology committee
3. Kentucky Horse Council – Education, Competition and Youth committees
4. Saddle up Safely – Executive Committee
5. Animal and Food Sciences Social Committee

Teaching – Advising

Total number of undergraduate advisees: 40

Total number of graduate advisees:

Number of graduate students graduated: M.S.: Ph.D.:

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.:

Courses Taught

ASC 310 - Equine Anatomy and Conformation, Spring 2009 - present

EQM 351 – Equine Health and Disease, Fall 2009 - present

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 4	Invited Presentations: 30
Abstracts: 1	Fact Sheets: 17
Book Contributions: 3	Posters:
Conference Proceedings: 6	Popular Magazines:
Numbered Extension Publications: 17	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites): 85

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: 16,500.00
As Co-PI: 50,152.00
Subtotal: 66,652.00

External – Competitive

As PI: 2,000.00
As Co-PI:
Subtotal: 2,000.00

External – Gift

As PI: 122,419.50
As Co-PI:
Subtotal: 122,419.50

Total funding received: 191,071.50

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

I have developed one undergraduate course and restructured another one. Both of them have enrollment of 45-60 students each semester. Student evaluations reflect that both courses are highly regarded and sought after.

I have and continue to provide leadership to a very strong youth extension program, the Kentucky 4-H Horse Program. Under my leadership we have created a certification training for the volunteer leaders, so they can, more capably, educate the youth involved in the program. Within the certification program, I have chosen the curriculum and created educational materials to accompany it. I have also created numerous educational hands-on workshops and training clinics that had never been offered before. These clinics serve both adults and youth.

Goals for Next Five Years

Teaching: Incorporate more wet labs for ASC 310. As a result of ASC 310 and ASC 101, an anatomy lab was built at Ag Science North. This will enable me to offer more dissection labs to the students.

Research: Develop applied horse research projects that will benefit horse owners.

Extension: Continue to develop educational programs for both adults and youth. I want to develop a video library with educational topics and make it available to my extension clients. I also want to create a more interactive webpage for the 4-H Horse Program and also for the adult extension program.

FACULTY RESUME (2005-2011)

Name: AUSTIN H. CANTOR **Academic Rank:** Associate Professor

Year of First UK Appointment: 1980 **Specialization:** Poultry Nutrition

Average % DOE **Research:** 51 **Extension:** **Teaching:** 49

Academic Background

Degree	Institution
1. Ph.D	Cornell University
2. M.A.	Teachers College, Columbia University
3. B.S.	Cornell University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Section Editor, Journal of Applied Poultry Research
2. Editorial Board of Animal Feed Science and Technology
3. Editorial Board of Emirates Journal of Agricultural Sciences

Awards

Committees

1. Review Panel, USDA Office of Scientific Quality Review, Nutrition and Genetics, 2007
2. National FFA Poultry Career Development Event Committee
3. Co-Chair, Multi-State Poultry Feeding & Nutrition Conference Organizing Committee
4. COA Precision Resource Management Grant Review Committee
5. Department Social Committee
6. COA Student Recruitment Committee

Teaching – Advising

Total number of undergraduate advisees: 150

Total number of graduate advisees: 4

Number of graduate students graduated: M.S.: Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.: 8

Courses Taught

ASC 340 Poultry Production
ASC 685 Mineral Metabolism
ASC 686 Advanced Nonruminant Nutrition
ASC 687 Vitamin Metabolism
ASC 380 Feeds and Feeding through Independent Studies Program
ASC 380 Feeds and Feeding internet version through Distance Learning Program
GEN 302 College of Agriculture France Study Tour

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 12	Invited Presentations:
Abstracts: 53	Fact Sheets:
Book Contributions: 2	Posters: 15
Conference Proceedings:	Popular Magazines:
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)

External – Gift (non-competitive grant)

As PI: \$106,500

As Co-PI: \$700,000

Subtotal: \$806,500

Total funding received: \$806,500

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Research: Established a model broiler breeder project used to investigate the effects of selenium, organic trace minerals and antioxidants in the diet of breeder hens on their production and reproduction variables, growth performance and meat quality of progeny, and gene expression in both breeders and progeny. A project was also developed using in ovo injection of selenium into the yolk of early developing embryos to examine toxicity and metabolism of Se on the embryo, as well as antioxidant status and immune status of hatched chicks. In trace mineral nutrition studies with laying hens and broiler chicks, it was shown that organic trace minerals (vs. salts) can be used to decrease dietary inclusion levels, improve tissue mineral status, and decrease mineral excretion, resulting in improved nutritional status of birds and decreased potential for environmental pollution from manure. Studies with laying hens demonstrated that relatively high dietary levels of distillers grains can be used to replace corn and soybean meal when enzyme complexes are also included in the diets.

Teaching: ASC 340 Poultry production was re-organized and has become a very popular course for students in animal sciences and other majors (~38 students per class). Enrollment in ASC 380 Feeds and Feeding online via Distance Learning has also increased and has been taken by students from various majors at UK and by many others across the country. My activities as an undergraduate advisor has greatly increased, having an average of 85 advisees each year.

Goals for Next Five Years

Teaching: I will be officially retired as of Jan. 3, 2012. I will continue to teach and advise in a post-retirement appointment. My goal will be to continue to improve all of my courses, making them more relevant to the needs of today's students. I will continue participation in the National FFA Poultry Career Development Event committee.

Research: I will focus on getting results from our ongoing research projects published and on transferring my responsibilities in our research program to others in our research team during my post retirement appointment.

Extension: I will continue participation as co-chair of the organizing committee of Multi-State Poultry Feeding and Nutrition Conference.

FACULTY RESUME (2005-2011)

Name: Richard D. Coffey

Academic Rank: Extension Professor

Year of First UK Appointment: 1994

Specialization: Swine

Average % DOE

Research: 0%

Extension: 100%

Teaching: 0%

Academic Background

Degree	Year	Institution	Area
1. B.S.	1986	Oklahoma State University	Animal Science – Production Option
2. M.S.	1990	Oklahoma State University	Animal Science – Swine Nutrition
3. Ph.D.	1994	University of Kentucky	Animal Science – Swine Nutrition

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. State Trainer/Coordinator for Adult and Youth PQA Plus Programs (2006-Present), National Pork Board.
2. Ag Faculty Council (2005-2006), UK College of Agriculture.
3. Secretary (2006). Kentucky Joint Council of Extension Professionals (JCEP).

Awards

1. 2011 Extension Award, Southern Section American Society of Animal Science.
2. 2011 Honorary State FFA Degree, National FFA Organization.
3. 2008 FFA Honorary Chapter Degree, Christian County FFA Chapter.

Committees

1. Cargill Pork, LLC Animal Care and Use Committee (2010-2011).
2. University of Kentucky Research & Education Center Advisory Committee (2005-2009).
3. KY Ag Water Quality Act Livestock Committee (1997-Present).
4. Kentucky Pork Producers Association Executive Board (1994-Present).
5. Animal and Food Science Web Site Review/Development Committee (2009-Present).

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 0

Number of graduate students graduated: 0

M.S.: 0

Ph.D.: 0

Number of graduate committees (excluding your students) M.S.: 1

Ph.D.: 1

Courses Taught

Guest lectures and (or) labs for the following courses:

ASC 408G Swine Science (2005, 2006, 2007, 2008, 2009, 2010, 2011).

ASC 382 Livestock Production Principles (2006, 2007, 2008, 2009, 2010).

ASC 382 Principles of Livestock Nutrition (2005).

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 0	Invited Presentations: 25
Abstracts: 0	Fact Sheets: 22
Book Contributions: 2	Posters: 0
Conference Proceedings: 1	Popular Magazines: 2
Numbered Extension Publications: 1	Patents/Genbank Register: 0
Reports of Progress: 4	Other (e.g. websites): 31

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:	\$21,900.00
As Co-PI:	0
Subtotal:	\$21,900.00

External – Competitive

As PI:	\$40,847.50
As Co-PI:	\$95,000.00
Subtotal:	\$135,847.50

External – Gift

As PI:	\$130,482.81
As Co-PI:	0
Subtotal:	\$130,482.81

Total funding received: \$288,230.31

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Since 2004, major accomplishment include : (1) co-developer of Extension Disaster Education Network web-based Animal Agrosecurity and Emergency Management Course, (2) State Trainer for PQA Plus Program with 12 County Agents trained and farm site assessments conducted for 37 KY producers and 16 TN producers, (3) provided information and clientele support through 1861 phone consultations, 1572 printed responses [letter, fax, E-mail], 871 office or face-to-face consultations, and 284 farm visitations, (4) development and implementation of KY 4-H Livestock Volunteer Certification Workshop with 14 workshops conducted and 841 volunteers trained, (5) development of Livestock Discovery CD with over 5,500 CDs distributed in 29 states, and (6) serve as Youth Programs Coordinator providing oversight and leadership for all youth livestock programs and activities.

Goals for Next Five Years

Teaching: Continue providing guest lectures/labs on appropriate topics.

Research: Continue working on alternative manure management systems that can be economically adopted by pork producers.

Extension: Continue meeting needs of swine industry clientele so that they can continue adopting the technologies and management strategies that are necessary to remain sustainable and economically viable.

FACULTY RESUME (2005-2011)

Name: Robert J. Coleman

Academic Rank: Associate Professor

Year of First UK Appointment: 1998 Specialization: Nutrition

Average % DOE Research: Extension: 55 Teaching: 45

Academic Background

Degree	Institution
1. Ph. D.	University of Alberta 1998
2. MS	University of Manitoba 1978
3. BS	University of Manitoba 1975

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Board of Directors for Equine Science Society
2. Director of Undergraduate Studies Equine Science and Management
3. Board of Directors Kentucky Quarter Horse Association (currently serve as Treasurer)

Awards

1. 2005 Distinguished Service Award Equine Science Society
2. 2007 Distinguished Service Award Eastern National 4-H Horse Round Up
3. 2007 KAESP Best Extension Program "Horse College"
4. 2008 Gama Sigma Delta "Master Teacher Award"

Committees

1. Research Committee American Quarter Horse Foundation
2. Equine Program Committee ASAS
3. Sponsorship Committee Equine Science Society (chair since 2003)
4. Editorial Board for the Professional Animal Scientist
5. Program Committee for the Horse Breeders Conference Alberta Canada

Teaching – Advising

Total number of undergraduate advisees: 92

Total number of graduate advisees: 2

Number of graduate students graduated: M.S.: Ph.D.:

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.:

Courses Taught

ASC 320, ASC 410G, EQM 101 and EQM 490

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:	Invited Presentations: 8
Abstracts:1	Fact Sheets:25
Book Contributions:1	Posters:
Conference Proceedings: 12	Popular Magazines: 42
Numbered Extension Publications: 11	Patents/Genbank Register:
Reports of Progress:2	Other (e.g. websites):

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI: \$68,000
As Co-PI: Extension portion of the NFRI Grant \$55,000
Subtotal: \$123,000

External – Gift

As PI: \$30,500.00
As Co-PI: \$100000.00
Subtotal: \$130,500.00

Total funding received: \$253,500

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Development of the Equine Science and Management program has been a major undertaking. Since the first students started in 2007 the program has grown to 217 current students. Development of Horse College into a major extension activity has taken many years to become a significant educational opportunity for horse owners. This program has been not only an opportunity to meet horse owners from across the state but to encourage agents to work more closely with the horse industry. We have developed a number of horse friendly agents who are willing to work with the industry.

I do not have a defined research appointment but have had to opportunity to develop 2 projects which are strong additions to the adult extension program. One in forage and grazing which the student is currently writing her thesis and the second working with an industry partner to train future leaders of the industry. I currently supervise the Larry Lawrence Fellowship student.

Goals for Next Five Years

Teaching: develop a strong Equine Science and Management curriculum that attracts the best and brightest students.

Research: Continue to look for research opportunities that will support my extension program.
Extension: Continue with Horse College but increase its availability to horse owners across the state thought the use of new technology but keeping in mind the role of a traditional Extension program.

FACULTY RESUME (2005-2011)

Name: Gary L. Cromwell

Academic Rank: Professor

Year of First UK Appointment: 1967

Specialization: Swine Nutrition

Average % DOE

Research: 95%

Extension:

Teaching: 5%

Academic Background

Degree	Institution
1. BS	Kansas State University
2. MS	Purdue University
3. PhD	Purdue University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Chair of FASS Committee on Food Safety, Animal Health, and Animal Drugs
2. Chair of National Research Support Project Oversight Committee – National Animal Nutrition Program
3. President of Kentucky Chapter, Gamma Sigma Delta

Awards

1. FASS – New Frontiers in Animal Nutrition Award - 2007
2. ASAS Foundation – Gary L. Cromwell Appreciation Club - 2011
3. Gamma Sigma Delta – G. E. Mitchell Outstanding Faculty Award for Service to Graduate Students – 2005
4. Outstanding Service Award – Kentucky Pork Producers Association

Committees

1. Chair of Animal and Food Sciences Awards and Recognition Committee
2. Chair of Search Committee – Feed Coordinator, Division of Regulatory Services
3. Member of NCCC-42 Committee on Swine Nutrition
4. Member of planning committee – Midwest Swine Nutrition Conference

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 11 (advisory committee)

Number of graduate students graduated: M.S.: 7 Ph.D.: 4

Number of graduate committees (excluding your students) M.S.: 7 Ph.D.: 6

Courses Taught

Swine Production every spring semester

Advanced Nonruminant Nutrition in fall semester of every third year

Mineral Nutrition 3 or 4 lectures every fall semester (Ca, P, Cu)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 33	Invited Presentations: 1
Abstracts: 50	Fact Sheets:
Book Contributions: 6	Posters:
Conference Proceedings: 11	Popular Magazines: 2
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI: \$54,410
Subtotal: \$54,410

External – Competitive

As PI: \$316,277
As Co-PI: \$20,000
Subtotal: \$336,277

External – Gift

As PI: \$123,250
As Co-PI: \$641,890
Subtotal: \$765,140

Total funding received: \$1,355,827

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Teaching: Enrollment in Swine Science has increased from 0 in 2004 up to 20-30 students per year the past five years.

Research: Have been active in conducting and reporting basic and applied research studies in swine nutrition and training graduate students. Published nearly 5 refereed journal papers per year and over 7 abstracts per year from 2004 to 2011.

Goals for Next Five Years (will retire on Jan 3, 2012 and continue on a post-retirement)

Teaching: None

Research: Plan to publish previous unpublished research and assist Dr. Lindemann in his research program.

Extension: None

FACULTY RESUME (2005-2011)

Name: Donald G. Ely

Academic Rank: Professor

Year of First UK Appointment: 1968

Specialization: Ruminant Nutrition

Average % DOE Research: 59%

Extension: Teaching: 41%

Academic Background

Degree	Institution
1. PhD	University of Kentucky
2. MS	Oklahoma State University
3. BS	Oklahoma State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

Awards

1. Gamma Sigma Delta Outstanding Graduate Student Advisor, 2010

Committees

1. Distinguished Service Award; Southern Section ASAS (Member 2007-08; Chair 2008-09)
2. Display/Trade Show Committee, ASAS (Member 2007, 2008)
3. Distinguished Teacher Award, ASAS (Member, 2006)

Teaching – Advising

Total number of undergraduate advisees: 12

Total number of graduate advisees: 4

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.: 4 Ph.D.: 1

Courses Taught

ASC 102: Application of Animal Sciences (3 hr, Spring)

ASC 404: Sheep Science (4 hr, Fall)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 2

Invited Presentations: 11

Abstracts: 15

Fact Sheets:

Book Contributions:

Posters:

Conference Proceedings: 1

Popular Magazines: 8

Numbered Extension Publications:

Patents/Genbank Register:

Reports of Progress:

Other (e.g. websites):

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$113,356 - Annual

As Co-PI: \$ 64,782 - Annual

Subtotal: \$178,138

External – Competitive

As PI:
As Co-PI:
Subtotal:

External – Gift

As PI: \$36,000
As Co-PI:
Subtotal:

Total funding received: \$214,138

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Teaching: The goal of ASC 102 (Applications of Animal Sciences) is to introduce students to the animal industry and the products produced. Fifty students enroll in lecture every spring, but are divided into two, 25-student sections for lab. PowerPoint slides are interwoven into interactive instruction during “lectures”. Students get “hands-on” experience in labs by weighing, condition scoring, aging, and evaluating phenotypes of animals. ASC 404 (Sheep Science) applies the principles of genetics, animal breeding, nutrition, reproduction and fiber production learned in prerequisite courses. Typically, 15 to 30 students actively participate in interactive instruction in the classroom and learn sheep management techniques (skills) through the process of describing the skill to be learned, observing its demonstration, followed by student application of the skill under professional supervision.

Research: This program uses sheep at the C. Oran Little Research Center and beef cattle at the Eden Shale Farm. Accomplishments include development of a purebred White Dorper sheep flock in cooperation with Dr. Debra Aaron and discovering that copper sulfate can be used to control stomach worm infestations in sheep. Other research shows commercial mineral, provided ad libitum to sheep and beef cattle, can be diluted with 50% white salt without sacrificing performance, grazing sheep and beef together on cool season grasses in spring results in more animal production per acre than grazing beef cattle alone, and strategic supplementation with a toxin adsorbent can increase production of beef cows and calves grazing endophyte-infected tall fescue.

Goals for Next Five Years

Teaching: (1) Continue to develop instructional techniques and materials that will challenge the intellectual capabilities of undergraduates. (2) Expand the hands-on aspect of undergraduate instruction in animal sciences.

Research: (1) Increase the efficiency of production of White Dorper, Polypay, and Hampshire sheep. (2) Study management strategies that will allow each breed to express itself to its genetic potential. (3) Demonstrate to producers how this is accomplished. (4) Discover a management strategy that will eliminate fescue toxicity in ruminants.

Extension:

FACULTY RESUME (2005-2011)

Name: David L. Harmon

Academic Rank: Professor

Year of First UK Appointment: 1992

Specialization: Ruminant Nutrition

Average % DOE

Research: 64

Admin: 20

Teaching: 16

Academic Background

	<u>Degree</u>	<u>Year</u>	<u>Institution</u>
1.	Ph.D.	1983	University of Nebraska
2.	M.S.	1980	University of Nebraska
3.	B.S.	1978	The Ohio State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Director of Graduate Studies (2002-2011)
2. Beef Research Unit Coordinator
3. Honorary Scientist, Rural Development Association, Republic of South Korea, 2005-2007

Awards

1. College of Agriculture George E. Mitchell, Jr. Award for Service to Graduate Students- 2010
2. College of Agriculture Thomas Poe Cooper Award for Research- 2006
3. American Society of Animal Science Jim Corbin Award in Companion Animal Biology- 2005

Committees

1. College of Agriculture Promotion & Tenure Academic Advisory Committee, Chair 2010
2. College of Agriculture Promotion & Tenure Academic Advisory Committee, member 2009
3. **AFRI** - Improving Sustainability by Improving Feed Efficiency of Animals and Animal Health and Production: Animal Bioinformatics Review Panels October 2010, Washington, DC
4. IACUC Committee member for Alltech Biotechnology, Inc. Nicholasville, KY.
5. Graduate Activities Committee, Chair (2005-2011)

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees (current): 5 (4 Ph.D. & 1 Post-Doc)

Number of graduate students graduated: M.S.: 7 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.: 1

Courses Taught

ASC 680 Laboratory Methods in the Nutritional Sciences

ASC 684 Advanced Ruminant Nutrition

ASC 388 Companion Animal Nutrition

Teaching, Research or Extension Publications 2005-2011 (numbers only)

AES Refereed Journal Articles: 40	Invited Presentations:14
Abstracts:40	Fact Sheets:0
Book Contributions:2	Posters:0
Conference Proceedings:3	Popular Magazines:0
Numbered Extension Publications:0	Patents/Genbank Register:0
Reports of Progress:16	Other (e.g. websites):0

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$394,181
As Co-PI: \$691,203
Subtotal:\$1,085,384

External – Competitive

As PI: \$984,475
As Co-PI: 0
Subtotal: \$984,475

External – Gift

As PI: \$669,279
As Co-PI: \$15,000
Subtotal: \$684,279

Total funding received: \$2,754,138

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Over the past four years I have been able to develop a new course, ASC 388, Companion Animal Nutrition, which is currently in the approval phase. It has been taught three times as Gen 300. Hopefully, this will be approved in the coming semester and will be a regular part of our curriculum. This along with ASC 680, Laboratory Methods in the Nutritional Sciences, will comprise my teaching responsibilities.

My research program has changed slightly in that I am no longer conducting companion animal research due to the absence of funding to support it. My final companion animal student is currently completing her degree which will be the 14th degree I have supervised involving companion animal research.

With the ending of my companion animal research I return my sole focus to my ruminant research program. My current support in this area is good with four students working on projects; however, additional funding will be needed to sustain this productivity. To this end I have submitted an AFRI proposal which grew out of the research of my recent Ph.D. student and focuses on gastrointestinal physiology.

Goals for Next Five Years**Teaching:**

Continue to develop and grow my new ASC 388 course into a solid component of our curriculum.

Research:

Compete current students and continue to find means to support a viable research program.

FACULTY RESUME (2005-2011)

Name: Robert J. Harmon

Academic Rank: Professor & Chair

Year of First UK Appointment: 1979

Specialization: Mastitis, lactation physiology

Average % DOE

Administrative: Research: 44%, Extension: 16%, Teaching: 40%

Academic Background

Degrees

Institution

1. BS

Ohio State University

Dairy Science

2. MS

Ohio State University

Dairy Science

3. PhD

University of Guelph

Veterinary Microbiol. & Immunology

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Secretary and Chair of Southern (SAC-2) Animal Science Chairs Group
2. Secretary, National Mastitis Research Foundation
3. KY Farm Bureau Sheep & Goat and Beef Cattle Advisory Committees

Awards

1. 2011 UK Work-Life Supervisor of the Year Award Finalist
- 2.
- 3.

Committees

1. North Farm Users Group
2. Little Research Center Users Group
3. USDA-ARS Program Review and Advisory Group
4. Chair, Assistant Director Ag & Natural Resources Search Committee
- 5.

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees:

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.: 1

Ph.D.: 1

Courses Taught

- ASC 564 Milk Secretion; each Spring Semester

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:	Invited Presentations:
Abstracts:1	Fact Sheets:
Book Contributions:	Posters:
Conference Proceedings:	Popular Magazines:
Numbered Extension Publications:1	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$149,650

As Co-PI: _____

Subtotal: \$149,650

Total funding received: \$149,650

Summary of Teaching, Extension or Research Accomplishments Since 2004 or Since Appointment:

As chair, my responsibilities include the oversight and management of research, instruction, and Extension programs as well as the fiscal responsibility for the department. In 2005 a new name, Animal and Food Sciences, was approved to better reflect the makeup of the department. In spite of budgetary challenges since 2004, the department has hired eight faculty and one lecturer and has managed to balance budgets each year. I have helped facilitate the establishment of a Food Systems Innovation Center and played a significant role in the initiation of a new Equine Science and Management degree program in the College of Agriculture. I have taken a leadership role in working with Eastern Kentucky University and the dairy industry in evaluating options for replacement of the UK Dairy Unit, including a partnership with EKU. I have also led an initiative to bring the Dairy Unit into compliance with nutrient management and water quality regulations, while downsizing the facility. The Animal Science curriculum was revised in 2005 and is now preparing a review of the curriculum once again. Assessment of learning outcomes has been initiated for both undergraduate and graduate programs.

Goals for Next Five Years

Teaching: Continue to teach ASC 564 and provide students with a challenging yet enjoyable experience. Initiate a review of the ASC undergraduate curriculum and utilize the assessment effort to enhance our curriculum. Transition to a new advising model with the hiring of an Academic Program Coordinator. Encourage faculty to be the best instructors they can be.

Research: Continue to develop competitive programs that are productive and contribute to the Land Grant mission. Work with industry groups to resolve the future location of our Dairy Unit.

Extension: Continue to develop and execute Extension programs that have impact on the clientele in the state and strive to be one of the strongest Animal Science Extension programs in the country.

FACULTY RESUME (2005-2011)

Name: George Heersche, Jr.

Academic Rank: Extension Professor

Year of First UK Appointment: 1978

Specialization: Extension Dairy Specialist

Average % DOE

Research:

Extension: 100%

Teaching:

Academic Background

Degrees

1. Bachelor of Science, Agriculture
2. Master of Science, Dairy Science
3. Doctor of Philosophy, Physiology

Institution

- Kansas State University
Kansas State University
Kansas State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Chairman of the National 4-H Dairy Cattle Judging Contest Management Committee
2. Co-superintendent and committee member for the Youth, Post-Secondary and Collegiate Dairy Cattle Judging Contests at the North American International Livestock Exposition
- 3.

Awards

1. Hoard's Dairyman Youth Development Award from the American Dairy Science Association
2. Dairy Promoter of the Year from the Kentucky American Dairy Association
3. Friend of Kentucky 4-H Award from the Kentucky 4-H Leaders Council

Committees

1. National Dairy Shrine Board of Directors
- 2.
- 3.
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees:

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.: 3 Ph.D.: 1

Courses Taught

1. Serve as mentor to the graduate student who teaches ASC 321 and ASC 323, Dairy Cattle Evaluation. Sometime this involves team teaching.
2. Team taught ASC 462G, Artificial Insemination of Farm Animals
3. Team taught ASC 420G, Dairy Cattle Science
4. Guest lecturer in ASC 120, Introduction to Animal Science

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:	Invited Presentations: 20
Abstracts:	Fact Sheets:
Book Contributions:	Posters:
Conference Proceedings: 3	Popular Magazines:
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites): 20

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI: _____
Subtotal:

External – Competitive

As PI:
As Co-PI: _____
Subtotal:

External – Gift

As PI: \$20,000
As Co-PI: _____
Subtotal: \$20,000

Total funding received: \$20,000

Summary of Teaching, Extension or Research Accomplishments Since 2004 or Since Appointment:

Conducted several annual statewide and national 4-H dairy educational opportunities. Served as co-superintendent of the Youth, Post-Secondary and Collegiate Dairy Cattle Judging Contests at the North American International Livestock Exposition. Chaired the National 4-H Dairy Cattle Judging Contest Management Committee. Worked closely with the allied industries to increase the successful utilization of Artificial Insemination in dairy herds. Invited speaker at the Kentucky Dairy Partners Meeting and the Kentucky Dairy Development Council's Winter Coverall Meetings. Helped train two National Champion FFA Dairy Cattle Career Development Event teams. Continued to serve as teacher, coach, mentor and counselor to youth involved in the Kentucky 4-H Dairy educational programs.

Goals for Next Five Years

Teaching: Guest lecture when invited

Research: Participate when invited

Extension: Continue to provide quality educational programs for the Kentucky dairy industry and Kentucky 4-H and FFA members

FACULTY RESUME (2005-2011)

Name: Bernhard Hennig

Academic Rank: Professor

Year of First UK Appointment: 1984

Specialization: Nutrition and Toxicology

Average % DOE

Research: 90

Extension: 0

Teaching: 10

Academic Background

Degree	Institution
1. BS (Biochemistry)	San Francisco State University
2. MS (Nutrition)	Colorado State University
3. PhD (Nutrition)	Iowa State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Editor-in-Chief, Journal of Nutritional Biochemistry (2001-present)
2. Participant of NIEHS/NIH 5-year strategic planning workshop (2011)
3. External Advisory Boards (University of Louisville, University of Iowa, Florida State University)

Awards

1. Fulbright Award (2009)
2. Helen LeBaron Hilton Award for Outstanding Leadership and Distinguished Achievement, Iowa State University (2009)
3. Superfund Research Program Distinguished Lecture (NIEHS/NIH) (2011)

Committees

1. Chairperson, NIEHS/NIH Special Emphasis Panel (grant review) (2006)
2. Member, US Fulbright Scholar Peer Review Committee (2009-2011)
3. Member, Planning Committee, Awards Committee, Membership Committee, American College of Nutrition (until 2011)
4. Member, UK Toxicology Training Grant Steering Committee (2009-present)
5. Member, UK Joint Committee on Honorary Degrees (until 2009)

Teaching – Advising

Total number of undergraduate advisees: 12 – undergrad research (ARRA, BIO)

Total number of graduate advisees: currently 4 doctoral students

Number of graduate students graduated (2005-2011): 6 M.S.: 0 Ph.D.: 6

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.: 7

Courses Taught:

University of Kentucky: NFS 311 (Nutritional Biochemistry) – every year

Universidad de Antioquia: Bioquímica Nutricional (2009, 2011)

Teaching, Research or Extension Publications – 2005 to 2011 (numbers only)

AES Refereed Journal Articles: 63	Invited Presentations: 30
Abstracts: 110	Fact Sheets: 0
Book Contributions: 5	Posters: 90
Conference Proceedings: 3	Popular Magazines: 0
Numbered Extension Publications: 0	Patents/Genbank Register: 0
Reports of Progress: yearly	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$46,000

As Co-PI: 0

Subtotal: \$46,000

External – Competitive

As PI: \$17,115,000

As Co-PI: \$3,778,732

Subtotal: over 20 million

External – Gift

As PI:

As Co-PI:

Subtotal: 0

Total funding received: over 20 million dollars

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

I teach NFS 311 (Nutritional Biochemistry) every year and advise mostly graduate students and postdocs.

I have been the Director of the UK Superfund Research Program (NIH-funded) since 2003, and we received two multi-million dollar competing renewals of our program grant. These research activities also include invited presentations at the national and international level and 72 refereed publications since 2004.

I have been the Editor-in-Chief of the *Journal of Nutritional Biochemistry (JNB)* since 2001; the current impact factor of JNB is 4.538.

Goals for Next Five Years

Teaching: continue to teach NFS 311 at UK and short courses at the Universidad de Antioquia.

Research: continue research and editorial activities.

Extension: will contribute if invited.

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 7	Invited Presentations: 16
Abstracts: 17	Fact Sheets: 0
Book Contributions: 0	Posters: 17
Conference Proceedings: 2	Popular Magazines: 2
Numbered Extension Publications: 0	Patents/Genbank Register: 1
Reports of Progress: 6	Other (e.g. websites): 2

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$
As Co-PI:
Subtotal: \$

External – Competitive

As PI: \$80,000
As Co-PI:
Subtotal: \$80,000

External – Gift

As PI: 10,000 estimate
As Co-PI:
Subtotal:

Total funding received: \$90,000

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Teaching: I teach the Advanced Food Technology course that has been recognized by IFT on to different occasion as a model course for teaching an R&D course.

Research: I have two patents pending for novel technologies including the virtual identification of microorganisms and cellular functions.

Patent receive was for a creating a novel molecule use to detect microorganism using rapid assay techniques

Goals for Next Five Years

Teaching: retire

Research: retire

Extension:

FACULTY RESUME (2008-2011)

Name: Elizabeth LaBonty

Academic Rank: Lecturer

Year of First UK Appointment: 2008

Specialization: Equine Reproduction

Average % DOE

Research:

Extension:

Teaching: 100%

Academic Background

- | Degree | Institution |
|------------------------|-----------------------------------|
| 1. Master of Science | University of California at Davis |
| 2. Bachelor of Science | University of Nebraska |

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.
- 2.
- 3.

Awards

1. Outstanding Faculty, LCCC - 2006
2. Academy of Teaching and Learning Scholars Program, UK 2009 - present
3. Phi Sigma Honor Society Member, Gamma Delta Chapter, UC Davis, 2005 - present

Committees

1. Equine Initiative Executive Committee, UK - 2011
2. Equine Studies Representative, GEN 100/200 College Committee, UK - 2010
3. Equine Internship Reception Committee Chair, UK - 2011
4. Kentucky Equine Youth Festival Planning Committee, UK - 2011
5. Equine Career Fair Committee Chair, UK – 2008, 2009, 2010, 2011

Teaching – Advising

Total number of undergraduate advisees: 34

Total number of graduate advisees:

Number of graduate students graduated: 2

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.:

Ph.D.:

Courses Taught

1. EQM 101 Intro to the Equine Industry (F-2009, F-2010, F-2011)
2. GEN 200 Contemporary Issues in Agriculture (F-2009, S-2010, F-2010, S-2011, F-2011)
3. EQM 399 Equine Internship (2009 – present, every semester)
4. GEN 109 Introduction to Equine Careers (S-2010, S-2011)
5. GEN 109 Equine Career Preparation & Employment Skills (F-2010, F-2011)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 1	Invited Presentations: 3
Abstracts: 2	Fact Sheets:
Book Contributions:	Posters: 1
Conference Proceedings: 2	Popular Magazines:
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Brief Summary of Teaching, Extension or Research Accomplishments Since 2008:

Since starting at UK in 2008, I have placed, supervised, and evaluated over 90 equine related internships. Students have completed internships from New York to Texas to Wyoming, and all across Kentucky. Internships have varied from working in equine hospitals and alongside equine practitioners, to administrative work at Keeneland, Fasig-Tipton, and the Kentucky Horse Council. Some students have completed research internships and others have worked with trainers and farm managers. I have also introduced two new classes to the curriculum, Introduction to Equine Careers and Equine Career Prep, and worked to add new student and internship outreach events. Such events include hosting an annual equine specific career fair, an ice cream social each fall to help new students get involved in clubs and teams, and in internship reception to celebrate and thank people who have hosted interns.

Goals for Next Five Years

Teaching: I have two main teaching goals for the next five years. One is that I would like to have both Introduction to Equine Careers and Equine Career Prep approved and recognized with their own EQM course listing, and the other is that I would like to teach two sections of EQM 101 rather than one to decrease the faculty to student ratio and also make scheduling easier for incoming freshman.

Research: For research, I would like to study the effect of various teaching methods on retention, specifically anatomy terminology, and also explore integrating the concept of service learning in equine and animal science courses. I hope to publish or present data that I have collected and hope to collect on these topics in the next five years.

Extension: I would like to improve the welcome event (either ice cream social or barbeque) for our freshman as well as the Internship Reception. I would also like to move the Equine Career Fair to a larger location and increase the number of attending booths and schools.

FACULTY RESUME (2005-2011)

Name: Laurie Lawrence

Academic Rank: Professor

Year of First UK Appointment: 1992 Specialization: Equine Nutrition

Average % DOE Research: 80 Extension: Teaching: 20

Academic Background

Degree	Institution
1. BS	Cornell University
2. MS	Colorado State University
3. Ph.D	Colorado State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Board of Directors, National Association of Equine Affiliated Academics
2. Board of Directors, Kentucky Equine Management Internship

Awards

1. Fellow, American Society of Animal Science 2011
2. Equine Science Award, 2008, American Society of Animal Science & Equine Science Soc
3. KFGC Public Service Award, 2011, Kentucky Forage and Grassland Council

Committees

1. Chair, National Research Committee on Horse Nutrition 2004-2006
2. Executive Committee, Equine Initiative, University of Kentucky, 2008-2011
3. Promotion and Tenure, Department of Animal and Food Sciences, UK 2009-2011
4. Chair, Awards Committee for the Equine Science Society,
5. Chair, Equine Species Committee, ASAS, 2005-06

Teaching – Advising

Total number of undergraduate advisees: 3

Total number of graduate advisees: 8

Number of graduate students graduated: M.S.: 5 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.: 3

Courses Taught

2005-2008

Equine Anatomy and Conformation (ASC 310)

Advanced Horse Evaluation (ASC 311)

Horse Industry Study (Gen 300)

Equine Nutrition (ASC 688)

2009-2011

Equine Nutrition (ASC 688)

Applied Equine Nutrition and Feeding (Gen 300)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 13	Invited Presentations: 28
Abstracts: 25	Fact Sheets: 3
Book Contributions: 11	Posters: 8
Conference Proceedings: 12	Popular Magazines: 5

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$188,590

As Co-PI: Subtotal: \$188,590

External – Competitive

As PI: \$384,850

As Co-PI: \$180,000 Subtotal: \$564,850

External – Gift

As PI: \$10,000 in unrestricted funds and \$100,000 as in-kind contributions

As Co-PI: Subtotal: \$ 110,000

Total funding received: \$763,440 (not including in-kind contributions)

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

I chaired the NRC committee to revise the “Nutrient Requirements of Horses”. This publication is used world-wide by researchers, equine nutritionists, horse owners, veterinarians and feed companies. Six graduate students completed 7 degrees (6 MS, 1 PhD). Jennifer Ringler-Earing was named the Outstanding MS student in the College and also received awards for her MS and Ph.D. research presentations at the ESS meetings.2009. Katie Watson received an award for her research at the joint meeting of the Society for Range Science and the American Forage and Grassland Society. I have enjoyed productive collaborative relationships with faculty in Biosystems and Ag Engineering and Plant and Soil Science, as well as with scientists in USDA-ARS. Accomplishments include a method for estimating the digestibility of horse feeds using an in vitro batch system; discovering that the microbial population of the foal’s GI tract is established within the first week of life; that by 6 months of age the digestive capacity of the growing horse is similar to the adult horse. We have identified grasses that are preferred by horses and have found that when given access to multiple species of forage, horses do not discriminate based on carbohydrate content. We have tested and validated several of the assumptions published in the NRC 2007; including the equation for predicting growth and the estimates of weight gain in pregnant mares. Research results have been presented at scientific meetings and to stakeholder groups. Teaching accomplishments include advising an active Horse Racing Club, teaching equine nutrition at the graduate and undergraduate level and developing a new collaborative program with a university in France to introduce their students to the Kentucky horse industry.

Goals for Next Five Years

Teaching: Teach “Applied Equine Nutrition and Feeding” as either an ASC or and EQM course (currently offered under Gen 300; a new course proposal was submitted in summer 2011)

Research: Develop our research in the growing horse and broodmare to better understand the nutrient requirements and effects of diet on gastrointestinal physiology and skeletal development.

Extension: Continue to conduct research that has immediate application in the horse industry and present results at stake holder meetings.

FACULTY RESUME (2005-2011)

Name: Jeffrey W. Lehmkuhler

Academic Rank: Assistant Professor

Year of First UK Appointment: 2008

Specialization: Beef Cattle Nutrition

Average % DOE

Research: 0

Extension: 100

Teaching: 0

Academic Background

Degree	Institution
1. Bachelor of Science	Purdue University
2. Master of Science	University of Missouri
3. Doctorate	University of Missouri

Committees, Awards, Offices

Elected/Appointed Offices

1. Southern Section Extension Committee, Secretary
2. SERA 41 Regional Project, Secretary

Committees

1. Mid-South Beef Stocker Association Board Member ('08-present)
2. University of Kentucky Beef IRM Committee ('08-present)
3. University of Kentucky Animal & Food Sciences Department Website Committee ('10-'11)
4. University of Kentucky Animal & Food Sciences Department Display Committee ('09-'10)

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 0

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.: 2

Courses Taught

ASC 406 Beef Production; develop and deliver approximately 1/3 of lectures.

ASC 382 Livestock Production Principles, provide a single guest lecture

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 7	Invited Presentations: 8
Abstracts: 10	Fact Sheets: 4
Book Contributions: 0	Posters: 0
Conference Proceedings: 6	Popular Magazines: 1
Numbered Extension Publications: 5	
Patents/Genbank Register: 0	
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:

As Co-PI:

Subtotal: \$0

External – Competitive

As PI: \$38,450 for Applied Master Cattleman ('10); \$19,000 for Master Stocker ('11); \$33,000 for Applied Master Cattleman ('11)

As Co-PI: \$219,394 for Master Cattleman, Master Grazer, Beef One ('11)

Subtotal: \$309,844

External – Gift

As PI: \$17,000 in semen donation in support of on-farm demonstrations

As Co-PI:

Subtotal: \$17,000

Total funding received: \$326,844

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Current focus in Extension relates to nutritional management of feeder cattle in stocker and backgrounding enterprises. Emphasis has also been place on agent educational programs to increase their knowledge base as well as aid them in their career ladder. Development of a new Master Stocker program for clientele has been a major thrust in 2011 for delivery in 2011 and 2012. Co-teach Beef Production with two of my colleagues since 2010 as well as provide an overview of the beef industry for non-majors enrolled in ASC 382. Research involves collaborating with colleagues in the receiving and finishing areas as well as supplementation of grazing cattle. On-farm demonstrations have been a mechanism to demonstrate management practices and increase adoption of management change.

Goals for Next Five Years

Teaching: Continue to improve delivery and engage students in the classroom while challenging them to think critically about topics. Would like to see enrollment increase 25% annually the next 3 years and then 10-15% after this.

Research: Continue to be involved with my peers and pursue on-farm research funding.

Extension: Have Kentucky as the center of the southeast for information on backgrounding and stockering beef cattle in the region. Continue to develop resources in the area of stocker and backgrounding, utilize the web as a mechanism to share these resources and on-going research efforts.

FACULTY RESUME (2005-2011)

Name: Merlin D. Lindemann

Academic Rank: Professor

Year of First UK Appointment: 1994

Specialization: Nutrition

Average % DOE

Research: 87

Extension: -

Teaching: 13

Academic Background

Degree	Institution
1. B.S.	University of Minnesota
2. Ph.D.	University of Minnesota

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Associate Editor, Nonruminant Nutrition section - Journal of Animal Science, 2002-2005
2. Midwest Swine Nutrition Conference committee chair (5-state committee which presents yearly nutrition conference [related to swine] for the feed industry)
3. S-1044 Multi-state sow nutrition project committee – multiple times served in the officer sequence; project has been ongoing for 30+ years. NCERA-89 Multistate swine production mngt project – recently elected secretary

Awards

1. 2008. American Society of Animal Science Animal Management Award recipient
2. 2010. UK College of Agriculture Thomas Poe Cooper Research Award recipient for distinguished achievements in research
3. 2008. Gamma Sigma Delta George E. Mitchell Award recipient for outstanding faculty service to graduate students
4. 2008. Teachers Who Made a Difference award recipient – an annual award through the College of Education to professors by voluntary nomination of undergraduate students

Committees

1. Appointed to the 11th Subcommittee on Swine Nutrition of the Nat'l Academy of Sciences/ Nat'l Research Council to review/revise the Nutrient Requirements of Swine, 2010 – 2012
2. Digestive Physiology of Pigs Internat'l Steering Committee, sole U.S. representative, chair of Local Organizing Committee bringing the meeting to U.S. for 1st time in 2012
3. UK Institutional Animal Care and Use Committee, member 2008 - 2014
4. United States Department of Agriculture - Small Business Innovation Research (SBIR) Animal Production and Protection panel manager, 2007 and 2008
5. UK Academic Area Advisory Committee for the Biological Sciences, member 2008-2010

Teaching – Advising

Total number of undergraduate advisees: 7

Total number of graduate advisees: 9

Number of graduate students graduated: M.S.: 5 Ph.D.: 3

Number of graduate committees (excluding your students) M.S.: - Ph.D.: 3

Outside examiner on 3 PhD (2 in Canada, 1 in Australia); 2 visiting scientists and 2 post docs

Courses Taught

ASC 378 Principles of Animal Nutrition, 1994 – 2011

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 33	Invited Presentations: 19
Abstracts: 58	Fact Sheets:
Book Contributions: 2	Posters:
Conference Proceedings: 19	Popular Magazines: 4

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$13,891
As Co-PI: \$65,910
Subtotal: \$79,801

External – Competitive

As PI: \$20,000
As Co-PI: \$116,277
Subtotal: \$136,277

External – Gift

As PI: \$707,000
As Co-PI: \$165,730
Subtotal: \$872,730

Total funding received: \$1,088,808

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Received both an undergraduate teaching award and a graduate advising/service award. Research has been productive in terms of number of organizations with whom I worked, number of publications, and number of students trained. Quality of research is further evidenced by the number of speaking invitations and interest of individuals for visiting scientist and post doc positions in my program. Twelve of 19 invited speaking presentations have been international including Europe, South America, Canada, and several Asian countries; many of the international invitations involved multiple presentations on multiple topics in multiple venues. Impact statements in the faculty reports submitted in this period demonstrate potential savings or added value from my research program of over \$20 million for domestic swine production alone; considering impact internationally would push that number up by factors of 10-20.

Goals for Next Five Years

Teaching: Transition to graduate classes and away from undergraduate classes.

Research: 1) to continue to foster relationships with faculty members in universities with under-utilized resources both in the US and, hopefully, internationally through cooperative research, 2) to conduct research in areas that impact waste management as well as production efficiencies, and 3) to continue doing meaningful “discovery” research in the university setting and scale it up in production settings.

Extension: My extension activities are informal and involve feed companies, dietary ingredient suppliers, and major swine production integrators. These activities will continue to be strengthened with particular emphasis on joint research in large production settings.

FACULTY RESUME (2005-2011)

Name: James C. Matthews

Academic Rank: Associate Professor

Year of First UK Appointment: 1998

Specialization: Beef Cattle Nutrition

Average % DOE Research: 75.0

Extension:

Teaching: 25.0

Academic Background

Degree	Institution
1. B.S., 1988	Rutgers University
2. M.S., 1991	Virginia Tech
3. Ph.D., 1995	Virginia Tech
4. Postdoctoral Research Fellow, 1997	University of Florida College of Medicine

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. University of Kentucky-Alltech Professor of Applied Nutritional Sciences (2008-present)
2. Adjunct Associate Professor in Animal and Poultry Sciences, Univ. of Guelph (2008-2011)
3. Member, 2009 USDA National Institute of Food and Agriculture Competitive Grants Program, peer review panel for Animal Growth and Nutrient Utilization

Awards

1. 2007 Midwest ASAS Outstanding Young Researcher Award

Committees

1. 2007-2009 ASAS annual (inaugural year, 2007) Cell Biology Symposium Committee
2. 2004-2007 ASAS tri-annual Growth and Development Symposium Committee
3. 2008-2011 University of Kentucky Institutional Biosafety Committee
4. 2005-2008 University of Kentucky Radiation Safety Committee
5. 2005-present Coordinating Committee for College Agricultural Biotechnology Program

Teaching – Advising

Total number of undergraduate advisees: total = 20, current = 0; mentored completion of 4 ABT 395 research projects

Total number of graduate advisees: total = 6, current = 2; (plus 4 postdoctoral scholars)

Number of graduate students graduated: M.S.: 2 Ph.D.: 2

Number of graduate committees (excluding your students) M.S.: 2 Ph.D.: 4

Courses Taught

ASC 683 (Protein Metabolism), 2005, 2007, 2009

ASC 689 (Physiology of Digestion and Absorption), 2006, 2008, 2010

ABT 395 (Independent Study in Agricultural Biotechnology)

Fall and spring, 2005-2010; summer, 2006-2010

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 4	Invited Presentations: 7
Abstracts: 8	Fact Sheets: 35 (unnumbered)
Book Contributions:	Posters:
Conference Proceedings: 4	Popular Magazines: 6
Numbered Extension Publications: 1	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: Hatch Funds – S-1008, S-1040 Regional Dairy Cattle Breeding Project \$7000

As Co-PI:

Subtotal: \$7000

External – Competitive

As PI:

As Co-PI: DAIReXNET - \$205,448

Subtotal: \$205,448

External – Gift

As PI:

As Co-PI:

Subtotal:

Total funding received: \$212,448

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Extension: I have conducted 109 county or area programs or workshops or made presentations in the areas of dairy cattle genetics, DHI dairy records dairy farm business management and farm management. I have published the numbered extension publication, unnumbered fact sheets, refereed journal articles and abstracts noted above as well as 26 issues of newsletters. In addition, I have made 2 international presentations and 4 regional presentations on dairy cattle genetics topics and 1 regional presentation on dairy farm business management.

Goals for Next Five Years

Teaching:

Research: Complete the study and publish the results on the final economic comparison between purebreds and crossbreds from the dairy cattle breeding project conducted at University of Kentucky, Virginia Tech and North Carolina State University since 2002.

Extension: Retirement is scheduled for January 3, 2012.

FACULTY RESUME (2005-2011)

Name: Kyle R. McLeod **Academic Rank:** Associate Professor

Year of First UK Appointment:2001 **Specialization:** Ruminant Nutrition

Average % DOE Research: 90 Extension: Teaching: 10

Academic Background

Degree	Institution
1. B.S.	Texas Tech University
2. M.S.	Texas Tech University
3. Ph.D.	University of Kentucky

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.
- 2.
- 3.

Awards

- 1.
- 2.
- 3.

Committees

- 1.University of Kentucky Institutional Animal Care and Use Committee (currently a 20% administrative appointment).
- 2.University of Kentucky Subcommittee for the Evaluation of Occupational Health and Safety program (member).
- 3.IACUC committee for Evaluation of Training Program for Personnel Working with Animal Research (Chairperson).
- 4.IACUC committee for Evaluation of Agricultural Animal Health Care Program (member).
- 5.Selection committees for faculty hires in Equine Science and Metabolic Physiologist (member).

Teaching – Advising

Total number of undergraduate advisees: NA

Total number of graduate advisees:5 (3 post-doctorial scholars)

Number of graduate students graduated:4 M.S.: 3 Ph.D.:1

Number of graduate committees (excluding your students) M.S.: 10 Ph.D.:8

Courses Taught

Energy Metabolism (ASC 681), Spring 2005, 2007, 2009, 2011

Mammalian Endocrinology (ASC/PGY 601), Fall 2005, 2006, 2008, 2010

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 21	Invited Presentations: 5
Abstracts: 29	Fact Sheets: 0
Book Contributions: 0	Posters: 0
Conference Proceedings: 5	Popular Magazines: 0
Numbered Extension Publications: 17	Patents/Genbank Register: 0
Reports of Progress: NA	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$729,908
As Co-PI: \$443,444
Subtotal: \$1,173,352

External – Competitive

As PI: \$449,228
As Co-PI: \$700,000
Subtotal: \$1,149,228

External – Gift

As PI: \$586,000
As Co-PI: \$140,650
Subtotal: \$726,650

Total funding received: \$3,049,230

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Research:

- Generated novel quantitative data to re-parameterize the current NRC nutrient prediction model; accounting for gastrointestinal use. This area has expanded to studying the impact of peripheral protein synthesis on whole-body energy metabolism and amino acid and energy substrate metabolism by the splanchnic tissues.
- Obtained funding and conducted research studying the impact of fescue-derived alkaloids on mammary gland gene expression and cellularity in lactating dairy cows.
- Developed a funded research program in the area of feline nutrition.
- Initiated a research program emphasizing growth and health of feedlot cattle during the early receiving or transition phase and subsequent impact of this period on overall feedlot performance and carcass quality

Teaching:

- Took the duties of primary instructor for ASC/PHY 601 after the faculty member in charge of the course (Dr. Shillo) left the university.
- Taught ASC 681 four-times with improving course evaluations; most recent exceed university, college, and department averages.

Goals for Next Five Years

Teaching: Incorporate practical labs and research approaches into graduate courses.

Research: To continue a funded research program in nutrition and metabolism.

FACULTY RESUME (2005-2011)

Name: Melissa C. Newman

Academic Rank: Associate Professor

Year of First UK Appointment: 1998

Specialization: Microbiology

Average % DOE

Research: 65.6

Extension:

Teaching: 34.4

Academic Background

- | Degree | Institution |
|---------|--|
| 1. 1990 | Ph.D., University of Kentucky, Lexington, Kentucky |
| 2. 1987 | M.S., University of Kentucky, Lexington, Kentucky |
| 3. 1984 | B.S. and A.S. Thomas More College, Crestview Hills, Kentucky |

Committees, Awards, Offices, etc.

Elected/Appointed Offices

1. Food Systems Innovation Center
2. University Faculty Senate
3. Council of Food Science Administrators

Teaching – Advising

Total number of undergraduate advisees:8

Total number of graduate advisees:5

Number of graduate students graduated: M.S.: 4 Ph.D.:4

Number of graduate committees (excluding your students) M.S.: 6 Ph.D.:3

Courses Taught

FSC 530 Food Microbiology

FSC 540 Food Sanitation

FSC 630 Foodborne Pathogens

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:12	Invited Presentations:5
Abstracts:10	Fact Sheets:0
Book Contributions:1	Posters:5
Conference Proceedings:0	Popular Magazines:1
Numbered Extension Publications:0	Patents/Genbank Register:1
Reports of Progress:0	Other (e.g. websites):2

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:0

As Co-PI:0

Subtotal: 0
External – Competitive
As PI:0
As Co-PI: \$6,750,000
Subtotal: \$6,750,000

External – Gift
As PI:22,000
As Co-PI:
Subtotal:22,000

Total funding received:6,772,000

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

My research area is pre- and post-harvest food safety and quality control. In recent years this worked has evolved to included activities to prevent, prepare for, respond to, and recover from non-routine emergencies resulting from intentional and non-intentional contamination affecting food products. I have concentrated on the control of foodborne pathogens both in the live animal and on the finished food products. This research includes the evaluation of novel feed additives to alter the microbial populations in the gastrointestinal tract of domestic livestock and handling techniques to extend shelf life and eliminate pathogenic bacteria in fresh and processed meat and produce.

My teaching responsibilities at the University of Kentucky have involved teaching of the five credit hour class “Food Microbiology” (FSC 530) both lecture and laboratory sessions each Fall. This is a requirement for all Food Science students in our program. In the spring of each even years I teach Food Sanitation (FSC 540), a three credit hour course, and odd years I teach Foodborne Pathogens (FSC 640). All three classes have undergone continuous modification during the last several years including the use of Blackboard to electronically provide resources to the students In addition I guest lectured for several Animal Science and Food Science classes and for CPH601 Occupation and Environmental health.

Goals for Next Five Years

Teaching: Continue to be innovative and include new teaching technologies as they become available. I n addition I intend to develop a food defense class to be taught on line

Research: The future direction of my research will continue to identify alternative methods for pathogen control both on the farm and in processed foods. In addition, we will increase our efforts to address the current concerns about food biosecurity. In this area, we intend to perform research directed at determining vulnerabilities in our current food systems. A logical result of this research will be the potential to make scientific recommendations for the protection of our nation’s food supply.

Extension:

FACULTY RESUME (2005-2011)

Name: O’Leary, Joseph

Academic Rank: Associate Professor

Year of First UK Appointment:1975

Specialization: Dairy Processing, Food Safety

Average % DOE

Research:

Extension:69.5

Teaching:30.5

Academic Background

Degree	Institution
1. B. Sc. Dy.	University College, Cork, Ireland
2. M. Sc. Dy.	University College, Cork, Ireland
3. Ph. D.	University of Minnesota

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.
- 2.
- 3.

Awards

- 1.
- 2.
- 3.

Committees

- 1.
- 2.
- 3.
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees:

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.: 4 Ph.D.: 6

Courses Taught

GEN 107 Introduction to Food Science (3 Credits) (every year)

FSC 306 Introduction to Food Processing (4 Credits) (3 times)

FSC 538 Food Fermentation and Thermal Processing (4 Credits) (5 times)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:	Invited Presentations:
Abstracts:	Fact Sheets:
Book Contributions:	Posters:
Conference Proceedings:	Popular Magazines:
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI:
As Co-PI: \$2,517, 137
Subtotal: \$2,517, 137

External – Gift

As PI:
As Co-PI:
Subtotal:

Total funding received: \$2,517, 137

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Contributed a large part of our teaching program during this period.
In Extension I help people through educational programs such as HACCP, BPCS, etc and also as a process authority by helping to formulate and safely process their products.
Made a major contribution to the FSIC.

Goals for Next Five Years ?

Teaching: Continually update teaching materials to current industry practices

Research: Continue on Hometown Security projects

Extension: Continue to work with FSIC to obtain new clientele

FACULTY RESUME (2005-2011)

Name: Anthony Pescatore

Academic Rank: Extension Professor

Year of First UK Appointment: 1986 Specialization: Poultry

Average % DOE Research: Extension:100 Teaching:

Academic Background

Degree	Institution
1. BS with honors	Michigan State University
2. MS	Michigan State University
3. PhD	Texas A&M University
4. MBA	Wilmington College

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. President: Federation of Animal Science Societies
2. President / Past President: Poultry Science Association
3. Interim Treasurer : Federation of Animal Science Societies

Awards

1. 2008 Poultry Science Association Fellow Award
2. 2011 Kentucky Association of Extension Professionals Outstanding Project
The Poultry Energy Efficiency Project
3. 2007 Kentucky Association of Extension Professionals Outstanding Project
The Pandemic Flu project

Committees

1. Poultry Science Association Fellows Committee (chair)
2. Poultry Science Association Foundation Board
3. AFS Faculty Merit evaluation committee
4. AFS Promotion and Tenure Committee
5. FASS Congressional Scientific Fellow selection committee

Teaching – Advising

Total number of undergraduate advisees:

Total number of graduate advisees: 1

Number of graduate students graduated:

M.S.:

Ph.D.:

Number of graduate committees (excluding your students) M.S.: 2

Ph.D.:2

Courses Taught

ASC 470 Capstone: Spring 2010 and Spring 2011

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles:18	Invited Presentations: 47
Abstracts: 90	Fact Sheets: 34
Book Contributions: 3	Posters:
Conference Proceedings: 23	Popular Magazines: 3
Numbered Extension Publications:6	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites): 3 websites, 2 MPU Manuals

Funding Support (2005-2011)Internal – Competitive (amount)

As PI:
As Co-PI:
Subtotal:

External – Competitive

As PI: \$681,366
As Co-PI: \$430,000
Subtotal: \$1,111,366

External – Gift

As PI: \$840,000
As Co-PI:
Subtotal: \$840,000

Total funding received: \$1,951,366.00

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

The energy project has increased the awareness of growers about energy conservation. Through local meetings and statewide conferences educational opportunities have been provided to producers throughout the state. The Poultry Producers Manual that is available online is an outstanding reference book of growers. The poultryenergy.com website has 250 hits per week.

A new web site smallflocks.com has been created and receives 500 hits per week. Thirty fact sheets have been created and posted on the web site. Agent in service training has been offered five times at three locations in the state. County meeting on small poultry flocks have been conducted. These efforts have increased the amount of reliable information available to this population. Processing and consumer safety are still an issue so I continue to work with t Kentucky State University, Department of Health, KY Department of Agriculture and Partners for Family Farms to develop operating procedures for mobile processing trailer and conducted training programs for small flock producers.

The 4H program in poultry continues to expand. A concentrated effort over the last four years with area trainings for 4Hers and training for agents and leaders has increased awareness of the programs. Resources for agents and leaders have been developed and are available on line. Record numbers of teams are now competing in Avian Bowl. The embryology program is one the biggest animal programs.

The Alltech/UK Alliance for Nutritional Research at Coldstream Research Park has become a model for industry and university cooperation. The Productivity of the research group has resulted in referred journal articles, and abstracts. The information generated has been presented at conferences and scientific meetings through the US and Europe. Based on the alliance research the use of organic selenium in breeder diets has become well accepted by the poultry

I have been called on by fellow faculty members to share my expertise in poultry science in the academic program. ASC 470 Capstone: Issues in Animal Agriculture. Course instructor for the required senior level course that deals with issues in animal agriculture. Course is an integral part of our student assessment process in the Department of Animal and Food Sciences. Purpose of course is to expand the world view of our students by discussion of issues facing animal agriculture. In addition, their communication skills and critical thinking skills are developed through course activities and presentations at a public forum. ASC 340 Poultry Science. Responsible for the poultry disease section which consisted of three lectures. ASC 102 Application of Animal Science: Conduct 2 weeks of laboratory on poultry (four lab sections) ASC 101 Domestic Animal Biology: Conduct avian anatomy laboratory for eight lab sections

Goals for Next Five Years

Teaching: Continue to develop Capstone course to enhance our graduates' ability to think and understand issues facing animal agriculture

Research: Continue to build on the success of the Alltech / University of Kentucky Alliance for Nutritional research and increase activity in nutrogeonomics

Extension: Develop eXtension COP to be outstanding source of information

FACULTY RESUME (2005-2011)

Name: Gregg Rentfrow

Academic Rank: Assistant Extension Professor

Year of First UK Appointment: 2006

Specialization: Meat Science

Average % DOE

Research: 0%

Extension: 77.2%

Teaching: 22.9

Academic Background

Degree	Institution
1. Ph.D.	University of Missouri
2. M.S.	University of Illinois
3. B.S.	University of Illinois

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. 2011 Intercollegiate Meats Judging Coaches Association Board of Directors (elected)
2. Kentucky HACCP (Hazard Analysis and Critical Control Points) Coordinator, 2010 – present (appointed by USDA-FSIS)

Awards

1. Achievement Award; 2011, American Meat Science Association
2. Outstanding Service to Kentucky's Beef Industry; 2011, Kentucky Cattlemen's Association
3. Outstanding New Extension Faculty Award; 2009, Kentucky Association of State Extension Professionals

Committees

1. Intercollegiate Meats Judging Team Coaches Association; 2002 – present, American Meat Science Association
2. Kentucky Country Ham Producers, UK Representative to the Board of Directors; 2006 - present
3. 4-H Country Ham Project Planning Committee; Chair, 2006 - present
4. Beef IRM; 2006 - present
5. Reciprocal Meats Conference Planning Committee; 2011, American Meat Science Association

Teaching – Advising

Total number of undergraduate advisees: 0

Total number of graduate advisees: 5

Number of graduate students graduated: M.S.: 2 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 7 Ph.D.: 4

Courses Taught

ASC 300 Meat Science, 100% Instruction of class, meets every fall semester

ASC/FSC 630 Advanced Meat Science, 50% Instruction of class, meets spring semester during odd numbered years

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 3	Invited Presentations: 15
Abstracts: 24	Fact Sheets: 0
Book Contributions: 0	Posters: 24
Conference Proceedings: 0	Popular Magazines: 5
Numbered Extension Publications: 8	Patents/Genbank Register: 0
Reports of Progress: 0	Other : Extension video: 1
	4-H Discovery CD: 1
	4-H Curriculum: 1

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI:
As Co-PI: 1
Subtotal: \$800

External – Competitive

As PI: 1
As Co-PI: 14
Subtotal: \$3,346,041

External – Gift

As PI: 3
As Co-PI: 2
Subtotal: \$70,500

Total funding received: \$3,417,341

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Food Systems Innovation Center – the FSIC has aided over 50 clients develop and evaluate food products and has HACCP trained over 100 individuals. Recently, the FSIC was approved by the FDA as a Better Process Control School location.

University of Kentucky Meat Cutting School – the UKMCS has trained over 500 meat cutters, meat processors, and chefs.

4-H Country Ham Project – The project has grown from 433 from 38 counties in 2006 to 634 4-Hers from 54 counties in 2011.

4-H State Meats Judging Contest – The state contest has grown from 12 4-Hers from 2 counties in 2006 to 49 from 8 counties in 2011.

Goals for Next Five Years

Teaching: Inspire more students to pursue careers in the meats industry.

Research: Continue to respond to the needs of the department

Extension: Continue to grow and expand the FSIC, UKMCS, and the 4-H Country Ham Project. I would like to develop a Master Butcher program.

FACULTY RESUME (2005-2011)

Name: Mary G. Rossano

Academic Rank: Assistant Professor

Year of First UK Appointment: 2007

Specialization:

Average % DOE

Research: 32

Extension: 0

Teaching: 68

Academic Background

Degree	Institution
1. Ph.D.	Michigan State University
2. M.S.	Michigan State University
3. B.S.	Michigan State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.
- 2.
- 3.

Awards

- 1.
- 2.
- 3.

Committees

1. Education Committee, American Association of Veterinary Parasitologists
2. Dept. of Animal and Food Sciences committee for undergraduate assessment
3. Equine Science and Management Curriculum Committee
- 4.
- 5.

Teaching – Advising

Total number of undergraduate advisees: 77

Total number of graduate advisees: 2

Number of graduate students graduated: M.S.: 0 Ph.D.: 0

Number of graduate committees (excluding your students) M.S.: 0 Ph.D.: 1

Courses Taught

ASC 320 (face-to-face) Equine Management, Fall 2007-2011

ASC 320 (online) Equine Management, Twice per year, 2007-2011

EQM 105 Equine Behavior and Handling, Spring 2008-2011

ASC 101 Domestic Animal Biology, Fall 2007-2011

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 9	Invited Presentations: 5
Abstracts: 7	Fact Sheets: 0
Book Contributions: 0	Posters: 0
Conference Proceedings: 0	Popular Magazines: 3
Numbered Extension Publications: 0	Patents/Genbank Register: 1
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$1,369
As Co-PI: \$200,000
Subtotal: \$201,369

External – Competitive

As PI: 0
As Co-PI: \$139,500
Subtotal:

External – Gift

As PI: 0
As Co-PI: 0
Subtotal: 0

Total funding received: \$340,869

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Teaching: I have built my teaching and advising program such that it is currently 70% of my distribution of effort. During a typical year, I teach 5 courses with a total of 13 laboratory sections. I advise 77 students. I have participated in the design and conduct of a prospective study of student assessment in our department. **Research:** I have completed research that I was involved with in my previous position, resulting in 11 refereed publications and 1 patent. My research at the University of Kentucky utilizes epidemiological methods to study student learning outcomes, predictors of academic success, equine surveys of populations and economics, the efficacy of anthelmintic drugs in horses and alternative methods of parasite control. Thus far, 2 refereed publications and 7 abstracts have been produced.

Goals for Next Five Years

Teaching: Continue to teach existing courses with ever-increasing numbers of students. Devise new approaches to utilize technology to enhance active learning, while still providing hands-on experiences for students in laboratory. Participating in student assessment effort will provide opportunities to improve my courses and the curriculum overall. Continue to advise 65-80 students and mentor individual students for independent studies and other projects.

Research: Publish results of parasitological research recently completed, publish findings of assessment research and complete the project of my PhD. student (a serological test for *Parascaris equorum* infection). Pursue funding for additional parasitological research.

FACULTY RESUME (2005-2011)

Name: William J. Silvia

Academic Rank: professor

Year of First UK Appointment: 1985

Specialization: Reproductive Physiology

Average % DOE

Research: 50%

Extension:

Teaching: 50%

Academic Background

Degree	Institution
1. B.S. Animal Sciences	Cornell University
2. M.S. Animal Sciences	West Virginia University
3. Ph.D. Reproductive Physiology	Colorado State University
4. Sabbatical Leave, Biochemistry	Michigan State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Director of Undergraduate Studies
2. Coordinator of the Dairy Section
3. UK Coldstream Dairy Unit supervisor

Awards

1. Master Teacher Award UK ΓΣΔ (2010)
2. Great Teacher Award UK Alumni Association (2009)
3. Fulbright Fellowship, Argentina (2010)
4. George Fleming Prize, from the editors of the *Veterinary Journal* (2006)

Committees

1. Curriculum Committee (chair)
2. Academic Programs Coordinator Search Committee (chair)
3. ad hoc assessment committee

Teaching – Advising

Total number of undergraduate advisees: 35

Total number of graduate advisees: 2

Number of graduate students graduated: M.S.:2 Ph.D.:1

Number of graduate committees (excluding your students) M.S.: 0 Ph.D.: 3

Courses Taught:

Current teaching assignments:

- ASC 101 (Domestic Animal Biology)
- ASC 660 (Biology of Reproduction)
- GEN 300-008 (Wildlife Biology and Management Applications)

Other teaching assignments during the review period:

- ASC 364 (Reproductive Physiology of Mammals) labs only
- ASC 420G (Dairy Cattle Science)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 7	Invited Presentations: 49
Review Articles:0	
Abstracts: 12	Fact Sheets:
Book Contributions: 0	Posters:
Conference Proceedings:	Popular Magazines:12
Numbered Extension Publications:	Patents/Genbank Register:
Reports of Progress:	Other (e.g. websites):

Funding Support (2005-2011)

External – Competitive

As PI: \$97,492

As Co-PI: \$466,074 (with Bryan Hains, Community Leadership Development)

Subtotal: \$563,566

External – Gift

As PI: \$20,305

As Co-PI:

Subtotal: \$20,305

Total funding received: \$583,871

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Research: In addition to Fulbright and Fleming research awards mentioned above, obtained funding to support research in the area of endocrine regulation of estrus expression. Collaborated on project to evaluate the productivity of crossbred dairy cattle. Published my first peer-reviewed research article in the area of comparative anatomy.

Teaching: In addition to assignments and awards mentioned above, oversaw the renovation of N-11, a lab that will support the teaching objectives in ASC 101. Instituted a system of undergraduate peer mentors to assist with instruction in ASC 101. Helped implement the curriculum revised in 2003.

Goals for Next Five Years

Teaching: continue to develop and improve ASC 101, particularly through the use of online instructional tools. Add the course ‘Wildlife Biology and Management Applications’ to the ASC curriculum. As DUS, organize departmental efforts in undergraduate research, increase opportunities for study abroad and

Research: continue research efforts if dairy cattle reproductive biology with a focus on estrus expression, ovarian follicular cysts and regulation of LH secretion by progesterone. Build on undergraduate research efforts in the area of comparative anatomy. Take sabbatical leave (University of Calgary, University of Missouri) to initiate research to sequence and characterize the expression of placental genes that code for secretory proteins in large bovids.

FACULTY RESUME (2005-2011)

Name: Surendranath P. Suman

Academic Rank: Assistant Professor

Year of First UK Appointment: 2006

Specialization: Meat Science

Average % DOE

Research: 79%

Extension: 0%

Teaching: 21%

Academic Background

Degree	Institution
1. Ph.D.	University of Connecticut, Storrs, CT, USA
2. M.V.Sc.	Indian veterinary Research Institute, India
3. B.V.Sc. & A.H.	Kerala Agricultural University, India

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Chair, *Meat Science* Journal Committee, American Meat Science Association (2010–2013)
2. Member-At-Large, Muscle Foods Division, Institute of Food Technologists (2010–2012)
3. Overseas Coordinator, Indian Meat Science Association (2008–Present)

Awards

1. International Meat Secretariat Prize (2009)
2. Outstanding Paper Presentation Award, American Oil Chemists' Society (2006)

Committees

1. Member, Committee for revising Guidelines for Meat Color Evaluation, American Meat Science Association (2007–2012)
2. Member, Reciprocal Meat Conference Program Planning Committee, American Meat Science Association (2009–2012)
3. Member, International Committee, American Meat Science Association (2010–2013)
4. Member, Distinguished Research Award Selection Committee, American Meat Science Association (2006–2009)
5. Member, Research Protocol Committee, American Meat Science Association (2006–2009)

Teaching – Advising

Total number of undergraduate advisees: 8

Total number of graduate advisees: 11

Number of graduate students graduated: M.S.: 0 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 3 Ph.D.: 6

Courses Taught

1. FSC 304, Animal Derived Foods (Spring 2007, 2008, 2010)
2. FSC 642, Food Pigments (Fall 2009)
3. FSC 430, Sensory Evaluation of Foods (Fall 2010)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 22	Invited Presentations: 14
Abstracts: 25	Fact Sheets: 0
Book Contributions: 1	Posters: 30
Conference Proceedings: 7	Popular Magazines: 0
Numbered Extension Publications: 0	Patents/Genbank Register: 0
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$6,200

As Co-PI: 0

Subtotal: \$6,200

External – Competitive

As PI: \$541,111

As Co-PI: \$90,000

Subtotal: \$631,111

External – Gift

As PI: \$1,400

As Co-PI: 0

Subtotal: \$1,400

Total funding received: \$638,711

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

I have secured five extramural competitive research grants focused on meat quality from federal as well as non-federal agencies and received two major awards (1 international and 1 national). In this period, I have published 22 peer-reviewed journal articles, 25 abstracts, 1 book-chapter, and 7 conference proceedings. Currently, I serve on the editorial boards of 3 international journals. My graduate students have won 5 national level awards and scholarships from various professional associations. I have taught 3 courses and developed 2 new courses at the University of Kentucky.

Goals for Next Five Years

Teaching: Continue improving the teaching methodology and position myself as a valuable instructor at University of Kentucky.

Research: Continue securing funds from federal as well as non-federal agencies to support the research program and publish the research results in a timely manner.

Extension: None

FACULTY RESUME (2005-2011)

Name: Kristine Urschel

Academic Rank: Assistant Professor

Year of First UK Appointment: 2008

Specialization: Equine nutrition and physiology

Average % DOE

Research: 60

Extension: 0

Teaching: 40

Academic Background

Degree	Institution
1. BSc	University of Alberta, Edmonton AB, Canada
2. PhD	University of Alberta, Edmonton AB, Canada
3. Postdoctoral	Virginia Tech, Blacksburg VA, United States

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Editorial Board member (2009 – present), Journal of Animal Science
2. Treasurer (2011 – 2012), American Society of Nutrition Experimental Animal Nutrition Research Interest Section
3. Secretary (2010 – 2011), American Society of Nutrition Experimental Animal Nutrition Research Interest Section

Committees

1. Advisor for the Animal and Food Sciences Graduate Student Association (2010 – present)
2. Member of the Department of Animal and Food Sciences Website Review Committee (2010 – present)
3. Member of the Department of Animal and Food Sciences Display Committee (2009)

Teaching – Advising

Total number of undergraduate advisees: 9

Total number of graduate advisees: 2

Number of graduate students graduated: M.S.: 0 Ph.D.: 0

Number of graduate committees (excluding your students) M.S.: 1 Ph.D.: 1

Courses Taught

ASC 325 (Animal Physiology): Fall 2009 (43 students), 2010 (47 students), 2011 (72 students)

ASC 410G (Equine Science): Spring 2010 (40 students), 2011 (42 students)

GEN 100 (Issues in Agriculture): Fall 2009 (20 students)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 3	Invited Presentations: 4
Abstracts: 19	Fact Sheets: 0
Book Contributions: 1	Posters: 2
Conference Proceedings: 0	Popular Magazines: 0
Numbered Extension Publications: 0	Patents/Genbank Register: 0
Reports of Progress: 0	Other (e.g. websites): 0

Funding Support (2005-2011)

Internal – Competitive (amount)

Subtotal: \$0

External – Competitive

As PI: \$232,695 direct costs (\$277,622 total)

Subtotal: \$232,695 direct costs (\$277,622 total)

External – Gift

Subtotal: \$0

Total funding received: \$232,695 direct costs (\$277,622 total)

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Since beginning my faculty appointment in August 2008, I have established my research laboratory and am beginning to gain recognition as an independent researcher in the field of equine protein nutrition and muscle physiology. I have received 3 externally competitive grants: Morris Animal Foundation First Award (not typically awarded to non-Veterinarians), a USDA-AFRI seed grant in the Animal Growth and Nutrient Utilization section (equine grants have historically not been funded in this area), and a Waltham-Buckeye Equine Grant. My first PhD student is expected to graduate in the Fall of 2011 and has received an NIH post-doctoral training fellowship to pursue her post-doctoral training in the University of Kentucky Department of Physiology. This student was also selected as a finalist in a prestigious graduate student competition for the American Society of Nutrition (Nutritional Science Council graduate student competition), where she was the only finalist presenting research obtained from an agricultural animal model. I have been invited to speak at National (2010 ASAS-ADSA Joint Annual Meeting) and International (2011 Alltech Symposium) venues. I have also given numerous abstract presentations at National and International meetings. I have had 2 peer-reviewed manuscripts published from 2010 and 2011 and a third was recently accepted for publication. I have also prepared 1 book chapter for a new book called “Equine Applied and Clinical Nutrition,” which is in the final stages of editing. Collaborations have been established both within the University of Kentucky (Department of Veterinary Science, Department of Physiology) and from outside institutions (Waltham Nutrition, Buckeye Nutrition, Penn State University). For teaching, I have taken over the primary teaching responsibility of two courses: Animal Physiology and Equine Science. For each of these courses, I have revised the curriculum and included activities and assignments to encourage the students to read and critique the available scientific literature. My teaching evaluations have been near the College and Department mean for each semester that I have taught. I currently preparing a graduate level course about macronutrient metabolism in domestic animals, which will be taught for the first time in Spring 2012.

Goals for Next Five Years

Teaching: Develop a graduate level macronutrient metabolism class; Continue to improve my teaching in my undergraduate classes by incorporating more discussions and activities and reducing the amount of PowerPoint-style lectures; Increase my involvement in undergraduate research projects by mentoring students and making my lab available to interested students

Research: Continue to develop my research program in the area of equine protein and muscle metabolism and secure long term extramural funding both through the USDA-AFRI program, other granting agencies and through industry partnerships; increase the size of my research group to include 3-4 graduate students at all times; continue to develop collaborations within and outside of the University of Kentucky

FACULTY RESUME (2005-2011)

Name: Eric Vanzant **Academic Rank:** Assoc. Professor
Year of First UK Appointment: 1998 **Specialization:** Ruminant Nutrition
Average % DOE **Research:** 77.7 **Extension:**0 **Teaching:** 22.3

Academic Background

Degree	Institution
1. B.S.	The Ohio State University
2. M.S.	Kansas State University
3. Ph.D.	Kansas State University

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

- 1.
- 2.
- 3.

Awards

- 1.
- 2.
- 3.

Committees

1. University of Kentucky Research Conflict of Interest Committee (appointed by Univ. President)
2. Dept. of Anim. & Food Sci. Assessment Committee (Chair)
3. College of Agriculture Sustainable Ag and Food Systems Committee (Member)
4. Dept. of Anim. & Food Sci. Curriculum Committee (Member)
5. College of Agriculture Sustainable Ag Program Curriculum Committee (Member)

Teaching – Advising

Total number of undergraduate advisees: 7

Total number of graduate advisees: 12

Number of graduate students graduated: M.S.: 4 Ph.D.: 1

Number of graduate committees (excluding your students) M.S.: 12 Ph.D.: 4

Courses Taught

ASC 378 Animal Feeding & Nutrition, Fall 2005, 2006, 2007, 2008, 2009, 2010, 2011

(co-instructor in all years except 2009)

ASC 380 Feeds & Feeding, Spring 2005 (last year the course was offered)

ASC 470 Capstone for Animal Agriculture, Fall 2009, 2010, 2011

ASC 684 Advanced Ruminant Nutrition, Spring 2006 (co-instructor), 2008, 2010

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 13	Invited Presentations: 4
Abstracts: 20	Fact Sheets:
Book Contributions: 2	Posters:
Conference Proceedings: 1	Popular Magazines:
Numbered Extension Publications: 11	Patents/Genbank Register:
Reports of Progress: N/A	Other (e.g. websites):

Funding Support (2005-2011)

Internal – Competitive (amount)

As PI: \$130,270
As Co-PI: \$727,264
Subtotal: \$857,534

External – Competitive

As PI: \$906,841
As Co-PI: \$894,923
Subtotal: \$1,801,764

External – Gift

As PI: \$2,000
As Co-PI: \$625,500
Subtotal: \$627,500

Total funding received: \$3,286,798

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Research:

- Derived quantitative data to enhance predictive models of beef cattle performance: including accounting for GI use in NRC nutrient supply predictions and improving models for predicting beef cattle growth under grazing conditions.
- Developed quantitative data for grazing management strategies on fescue-based systems, allowing economic modeling to improve decision support systems for producers.
- Initiated research evaluating growth and health of receiving cattle, with an emphasis on refining protein requirements and nutritional impacts on cattle health and subsequent feedlot performance.
- Developed a unique approach for remote/continuous monitoring of cattle health, including hardware and software systems.

Teaching:

- Have refined and focused the laboratories for ASC378, including migration to a blended, online + in-person instructional approach for teaching diet formulation strategies.
- Refined instructional approach in our departmental capstone course with a large emphasis on enhancing critical thinking skills – including rigorous assessment approaches.
- Have led departmental-level assessment efforts for our undergraduate program.

Goals for Next Five Years

Teaching: Increase use of blended instructional approaches; enhance critical thinking skills.

Research: Identify and obtain funding to continue research in beef cattle nutrition/health.

FACULTY RESUME (2005-2011)

Name: Youling Xiong

Academic Rank: Professor

Year of First UK Appointment: 1990

Specialization: Food Science

Average % DOE

Research: 83%

Extension:

Teaching: 17%

Academic Background

Degree	Institution
1. Ph.D.	Washington State University
2. M.S.	Oregon State University
3. B.S.	Jiangnan University (China)

Committees, Awards, Offices, etc. (list those you consider most prestigious first)

Elected/Appointed Offices

1. Associate Editor, Journal of Food Science (2010-present)
2. Section Editor (muscle biochemistry), Journal of Muscle Foods (2007-2009)
3. Grants Review Panel, USDA NRI (2006, 2008)

Awards

1. Elected Fellow, Institute of Food Technologists (2010).
2. University Research Professor, University of Kentucky (2011)
3. Thomas Poe Cooper Distinguished Research Award, COA, University of Kentucky (2009)

Committees

1. Research Protocol Committee (2008-2011), American Meat Science Association (AMSA)
2. RMC Program Planning Committee (2001-2007), AMSA
3. Food Industrial Achievement Award Committee (2009), Institute of Food Technologists (IFT)
4. Annual Meeting Planning Subpanels (Food Chemistry; Nutrition & Health), IFT
5. IFT's Certified Food Scientist Ad Hoc Group (2010).

Teaching – Advising

Total number of undergraduate advisees: 22

Total number of graduate advisees: 27

Number of graduate students graduated:

M.S.: 5

Ph.D.: 9

Number of graduate committees (excluding your students) M.S.: 21

Ph.D.: 11

Courses Taught

Food Chemistry (FSC 434G, 4 cr.)

Adv. Meat Science (FSC 630, 4 cr.)

Food Proteins (FSC 638, 3 cr.)

Teaching, Research or Extension Publications (numbers only)

AES Refereed Journal Articles: 77	Invited Presentations: 37
Abstracts: 75	Fact Sheets: 0
Book Contributions: 7	Posters: 0
Conference Proceedings: 15	Popular Magazines: 0
Numbered Extension Publications: 0	Patents/Genbank Register: 0
Reports of Progress: 10	Other (e.g. websites): 0

Funding Support (2005-2011)Internal – Competitive (amount)

As PI: \$40,000

As Co-PI: 0

Subtotal: \$40,000

External – Competitive

As PI: \$531,654

As Co-PI: \$2,501,127

Subtotal: \$3,032,781

External – Gift

As PI: \$158,366

As Co-PI: 0

Subtotal: \$158,366

Total funding received: \$3,231,147

Brief Summary of Teaching, Extension or Research Accomplishments Since 2004:

Research over the past 6 years has concentrated on the antioxidative peptides and protein oxidation in fresh and processed muscle foods. A major finding is that mild oxidation promotes water-binding and texture-forming properties of meat products; and the loss of meat quality due to the exposure to strong oxidants can be alleviated by antioxidative peptides prepared from soy, potato or zein proteins. During this period, our research group has obtained more than \$3 million funding, published 77 refereed journal papers, and graduated 5 M.S. and 9 Ph.D. students. These accomplishments have led to several major awards conferred.

Teaching includes 3 courses: Food Chemistry (FSC 434G, 4 cr.), Adv. Meat Science (FSC 630, 4 cr.), and Food Proteins (FSC 638, 3 cr.). Student course evaluation averaged about 3.7/4.0.

Goals for Next Five Years

Teaching: Emphasize hands-on experience; increase class field trips.

Research: Continue the effort to secure extramural funding; enhance international collaboration.

Extension: None.

Animal and Food Sciences

Appendix IX

Student Learning Outcomes

Curriculum Maps

Assessment Results

Annual Student Learning Outcomes Report

Animal and Food Sci
Animal Sciences - Bachelor
Spring 2010 - ASC - BS

Student Learning Outcome(s) Assessed

anmlsci.b: Scientific information Students will effectively acquire, assimilate, analyze and report scientific information.

Assessment Methods and Tools

In order to assess the critical thinking dispositions and skills of students after they had completed the majority of their AFS curriculum, data were collected in Fall (24 students) and Spring (16 students) semesters of ASC 470, 'Capstone for Animal Agriculture'. Assessment instruments (described below) were administered by the course instructors, Tony Pescatore and Eric Vanzant, and results were summarized by Eric Vanzant.

Attitudes of students toward critical thinking and critical thinking skills were assessed using the California Critical Thinking Dispositions Inventory (CCTDI), and the California Critical Thinking Skills Test (CCTST), respectively. In both semesters, both of these instruments were administered at the beginning of the semester to all students enrolled in the course. Although data were also collected at the end of the semester, end-of-semester data were deemed unreliable (large proportion of exceedingly low scores suggesting that students were not invested in the assessment after completion of their major course project. According to the test publishers, student's lack of motivation to give their best on post tests is one of the largest threats to data validity). These instruments were chosen because of their prevalence in the research literature, providing a body of data for comparison, and because they were developed pursuant to the consensus concept of critical thinking from the 46-member expert panel assembled by the American Philosophical Association (the Delphi research project; Facione et al., 1990). As such, the CCTDI includes seven scales to assess the attitudes of students toward utilizing critical thinking skills: Truthseeking, Open-mindedness, Analyticity, Systematicity, Critical Thinking Self-Confidence, Inquisitiveness, and Maturity of Judgment. The CCTST focuses on the *skills* side of the equation and assesses the ability of test-takers to 1) analyze or interpret information, 2) draw accurate and warranted inference, 3) evaluate inferences and explain why they represent strong or weak reasoning, and 4) explain why a given evaluation of an inference is strong or weak. The version of the form used (form 2000) has been shown to have an internal consistency reliability (KR-20 alpha) ranging from .78 to .84.

These instruments were evaluated by Insight Assessment, providing a comparison with norms established for students at 4-year institutions. Both instruments were scored using criteria and standards established by the test developers, Insight Assessment.

Results

For the CCTDI, means and associated SD for scores in each of the 7 scale areas, along with the composite score, are shown in the following table. .Additionally, the test publishers categorize responses in each scale area (and, by inference into the composite score) into the following categories: 1) hostile/adverse, 2) ambivalent, 3) positive, and 4) strong. The percentage of students falling into each category are also included in the table.

Item	Mean	SD	Hostile/adverse	Ambivalent	Positive	Strong
Truthseeking	38.2	5.82	10.0%	50.0%	40.0%	0.0%
Openmindedness	43.8	5.44	0.0%	32.5%	55.0%	12.5%
Analyticity	43.1	5.00	0.0%	32.5%	60.0%	7.5%
Systematicity	39.7	6.47	7.5%	50.0%	35.0%	7.5%
Confidence	41.4	7.09	5.0%	40.0%	42.5%	12.5%
Inquisitiveness	45.5	6.29	0.0%	22.5%	52.5%	25.0%
Maturity	45.8	5.35	0.0%	17.5%	57.5%	25.0%
Composite	297.5	27.40	0.0%	22.5%	72.5%	5.0%

For the CCTST, means and standard deviations in each of the subscale areas, along with total scores and percentile rank amongst the norm group of 4-year college students are included in the following table:

Category	Mean	SD
Induction	11.1	2.23
Deduction	7.3	2.72
Analysis	4.5	1.47
Inference	8.7	2.07
Evaluation	5.2	1.87
Total	18.4	4.25
Percentile	60.4	26.57

Interpretation of Results

Data were analyzed by Eric Vanzant. Because this is our initial foray into assessing critical thinking skills, our focus is on developing baseline data of the critical thinking dispositions and skill levels of students who have progressed through our undergraduate program. On average, dispositions toward critical thinking among our ASC 470 students were stronger than anticipated, and were essentially equivalent to dispositions reported for students in their first through fourth years of pharmacy school (Cisneros, 2009). No differences in the dispositions assessment scores were seen when comparing students from the fall and spring semesters. On the critical thinking skills test, our students average score placed them in the 60th percentile, when compared with scores from students at 4-year universities. Unlike the dispositions score, we did note a difference in the CCTST scores between the two semesters of ASC 470: students tested at the beginning of the fall semester scored, on average, in the 70th percentile whereas those tested at the beginning of spring semester had scores that placed them in the 46th percentile. This raises a number of questions regarding the testing protocol to ensure student engagement in the testing process. Although it is possible that this accurately reflected the skill levels of students enrolled in the course in different semesters, it is equally plausible that timing, or other circumstances associated with the testing environment could be involved. Generally speaking, critical thinking scores were strongest for analytical skills, intermediate for inferential skills, and weakest for evaluation skills. If results from subsequent years provide corroboration, this information can help guide our instructional efforts to enhance acquisition of skills in the areas in which students are weakest.

Improvement Action

- a. Formalize the CCTST and CCTDI testing strategies so that they are identical between the two semesters and across years.
- b. Begin administration of both of these instruments in our first-semester, freshman introductory course (ASC101) in order to provide information on the development of critical thinking skills and dispositions across the duration of the program.
- c. Increase the standardization of ASC470 across semesters - e.g. utilize written reports in both, determine whether individual vs. group projects best suit our needs, etc.
- d. Develop rubric to assess ASC 470 written reports specifically with respect to this learning outcome.

A strategic planning meeting for ASC 470 will be held in the summer of 2010 with changes to be implemented by fall semester 2010. This meeting will be open to all faculty within the department.

Reflection

The CCTST and CCTDI testing strategies have been standardized across both semesters of the course. We have decided to focus on pre-testing (at the beginning of the semester) in order to provide us with information on how well prepared our students are coming into our Capstone course (i.e. to get a sense of how our other course work enhances critical thinking skills and dispositions). We initiated use of the CCTST in our ASC 101 course, and decided against trying to utilize the CCTDI at this point. This was largely a pragmatic decision. The collection of background/demographic information, and administration of our departmental basic knowledge assessment along with the CCTST consumes an entire lab period, and it was considered excessive to devote additional time to collection of the dispositions information, which would have marginal utility compared with the other assessment instruments. We now have two years of data on both incoming students and seniors, have conducted statistical analysis to identify predictors of success, and have incorporated this into two abstracts for presentation at scientific meetings. Discussions on standardization and rubric development for ASC 470 are continuing, and at present, we have not standardized the approach to this course.

Attachments

No Attachments

Annual Student Learning Outcomes Report

Animal and Food Sci
Animal Sciences - Bachelor
Spring 2011

Student Learning Outcome(s) Assessed

anmldsci.d: Knowledge Students will demonstrate a thorough command of knowledge in an area of emphasis offered by the Graduate Faculty in the Department of Animal and Food Sciences.

Assessment Methods and Tools

An assessment instrument was designed to evaluate foundational animal sciences knowledge. This test contains 20 questions designed to test basic knowledge in a variety of discipline areas considered to be fundamental to the Animal Sciences discipline (including nutrition, genetics, anatomy, physiology, etc.) The test was administered to incoming freshmen in ASC 101 and to seniors in ASC 470. This test is being administered concurrently with a survey instrument designed to collect background and demographic data in order to help us identify background and demographic factors that are associated with academic success in our program. We have established a research team (Dr. Mary Rossano, PI; Drs. William Silvia, Eric Vanzant, and Tony Pescatore, Co-PI's; Ms. Steffanie Burk, graduate student) and have obtained IRB approval for a 5-year study entitled "Assessing student learning outcomes and identifying factors leading to academic success in the Department of Animal and Food Sciences", which will allow us to publish results from our analysis.

Results

In Fall Semester, 2010, scores on the foundational knowledge test were obtained from 201 students enrolled in our introductory course (ASC 101), and 98 of those were from students who had declared as Animal and Food Sciences majors. Additionally, scores were obtained from 14 upperclass students enrolled in our capstone course (ASC 470), all of whom were Animal and Food Science majors.

The average percent correct among all test-takers from ASC 101 was 44.3%, from Animal and Food Science majors in ASC 101, it was, 42.7%, and from ASC 470 students it was 73.9%.

Logistic regression on data from the ASC 101 course indicated that there was no association ($P = 0.58$) between scores on the Basic Knowledge Test and likelihood of withdrawing from the course. We used standard regression analysis approaches to identify any possible relationships between the following demographic/background characteristics and performance on the Basic Knowledge Test: Year in college, self-reported high school GPA, gender, age, ethnicity, and major (Animal & Food Sciences vs. Equine Science & Mgmt. vs. Other). Although a significant ($P = 0.06$) positive relationship between self-reported high school GPA and performance on the Basic Knowledge Test was detected, it accounted for less than 2% of the variation in scores on the Basic Knowledge Test. Combined, all of the above variables explained less than 4% of the variation in those scores. Likewise, a significant ($P < 0.01$), though weak ($R^2=0.04$) relationship was detected between performance on the Basic Knowledge Test, and the final course score for ASC 101 and none of the subsection scores provided any better relationships with the final course score.

Interpretation of Results

This assessment is a multiple-choice exam designed by Dr. Bill Silvia and reviewed by various members of the departmental assessment committee (Drs. Mary Rossano, Lee Edgerton, Bob Coleman, and Eric Vanzant). Data analysis has been conducted by Steffanie Burk, graduate student, under the supervision of Dr. Mary Rossano, and by Eric Vanzant. A report on our methodology and summarization of demographic data collected has been presented at the annual meeting of the Equine Science Society in May, 2011 by Ms. Burk.

All presently available data indicate that student performance on our Basic Knowledge Test is not significantly influenced by year in school, gender, age, declared major, or ethnicity. Additionally, the very weak relationships between student performance on this evaluation instrument and high school GPA or ASC101 course grade indicate that the use of this assessment tool is not redundant with other data we are collecting.

As this was the first use of this instrument, we were very interested in the mean performance levels of both our incoming students (in ASC 101) and our seniors (in ASC 470). The mean scores (around 44% and 74%, respectively) indicate that the overall difficulty level of the test is appropriate, in that it is sufficiently difficult to allow measurement of improvement over the course of our program, and has a sufficiently high ceiling to allow us to adequately evaluate students at the upper end of the performance range. Though there are some details associated with the instrument that may require tweaking, overall we are very happy with our first test-run of this assessment tool.

Although results must be viewed cautiously at this point, as we are just in the baseline data collection phase, and have a very limited number of data points from upper classmen ($n=14$), the results are encouraging, with a 30 percentage point improvement in mean scores between our incoming students and our seniors.

Improvement Action

This was the first year of utilizing this assessment tool. Thus, it was used to establish baseline data. We are in the process of slightly modifying some of the questions to reduce potential ambiguity. Additionally, we are considering the development of a question pool, which would decrease the likelihood of inflating test scores across time as we use this instrument in a prospective cohort study. This will be a substantial undertaking, in that we will need to enlist instructors from most of our core courses and will need to conduct validation tests to ensure internal consistency of the questions. It is possible that the final version will be somewhat larger than the present exam, though we will exercise care to ensure that we have sufficient consistency to allow comparison with results from this year.

Reflection

Problematic questions in basic knowledge test were modified to eliminate ambiguity. After some discussion, we have agreed to maintain this instrument to enhance continuity across years. If evidence of artificial score inflation becomes apparent, we will revisit the concept of developing a question pool. At present, the mean scores of both incoming students and senior students are sufficiently below the ceiling that we feel that this test allows for adequate differentiation of scores. Furthermore, it is well balanced across the various discipline areas within our program.

Attachments

No Attachments

Annual Student Learning Outcomes Report

Animal and Food Sci
Animal Sciences - Bachelor
Spring 2012

Student Learning Outcome(s) Assessed

anmlsci.b: Scientific information Students will effectively acquire, assimilate, analyze and report scientific information.

Assessment Methods and Tools

We have administered the California Critical Thinking Skills test to 174 Animal & Food Sciences freshmen enrolled in ASC 101 during fall semesters of 2010 and 2011 and to 76 seniors enrolled in ASC 470 during all five semesters spanning from fall 2009 through fall 2011. Tests were provided at the beginning of the semester in all cases. This instrument is one of two primary standard critical thinking assessment tests commonly reported in the research literature (Behar-Horenstein and Niu, 2011). This instrument was chosen because of its prevalence in the research literature, providing a body of data for comparison, and because it was developed pursuant to the consensus concept of critical thinking from the 46-member expert panel assembled by the American Philosophical Association (the Delphi research project; Facione et al., 1990). As such, this instrument assesses the ability of test-takers to 1) analyze or interpret information, 2) draw accurate and warranted inference, 3) evaluate inferences and explain why they represent strong or weak reasoning, and 4) explain why a given evaluation of an inference is strong or weak. The version of the form used (form 2000) has been shown to have an internal consistency reliability (KR-20 alpha) ranging from .78 to .84.

Behar-Horenstein, L. S., and L. Niu. 2011. Teaching Critical Thinking Skills In Higher Education: A Review Of The Literature. *Journal of College Teaching & Learning (TLC)* 8: 25-41.

Facione, P. A. 1990. The California Critical Thinking Skills Test -- College Level. Technical Report #1. Experimental validation and content validity. California Academic Press, Millbrae, CA.

Results

Scores from the CCTST include total aggregate scores, as well as scores in each of 5 subcategories: Induction, Deduction, Analysis, Inference, and Evaluation. Mean total and sub-category scores (\pm SD) for 174 freshmen (across 2 fall semesters of ASC 101) and 76 seniors (across 5 semesters of ASC 470) were as follows:

	Total	Induction	Deduction	Analysis	Inference	Evaluation
Freshmen	17.44 (4.51)	10.08 (2.65)	7.36 (2.53)	4.17 (1.38)	8.38 (2.47)	4.89 (2.01)
Seniors	19.03 (4.44)	11.08 (2.80)	7.94 (2.80)	4.46 (1.47)	9.08 (2.17)	5.49 (2.00)

Interpretation of Results

Data were compiled by Mary Rossano and graduate student Steffanie Burk. De-identified data were provided to Eric Vanzant, who performed the statistical analysis and provided recommendations. Data were analyzed for departures from normality and were tested for homogeneity of variance between the two populations (freshmen vs. seniors) using SAS JMP. Results of these analyses confirmed that assumptions for standard ANOVA techniques were satisfied (absence of meaningful deviations from normality and Bartlett's test for homogeneity of variance ($P \geq 0.16$ for all variables)). Thus, analysis of variance was conducted on each of the scores to determine differences between freshmen and senior scores. Differences were highly significant ($P \leq 0.01$) for total score, and for the Inductive category score; significant ($P < 0.05$) for the Inference and Evaluation categories, and non-significant ($P \geq 0.10$) for the Deductive and Analysis categories. As pointed out by Hatcher (2006), the use of effect size has become the standard for analyzing assessment data. Further, effect sizes allow for comparison with studies that have used different evaluation instruments. Thus, effect sizes (Cohen's d-values) were calculated to evaluate the change in CCTST scores between freshmen and senior years. The effect size for total CCTST score was 0.36 SD, and subscore effect sizes ranged from 0.20 to 0.39 SD. This level of change in critical thinking skills is in general agreement with reports from other longitudinal studies. In their seminal work, "How College Affects Students", Pascarella and Terenzini (2005) reported that the single available longitudinal study designed to measure change in critical thinking skills across 4 years had an effect size of 0.25. However, based on their overall synthesis of the available data, they suggested that an average effect size of 0.5 could be expected across the 4 year college experience. Given that our 'senior' tests were given at the beginning of the semester of our 'Critical Thinking' capstone course, representing student achievement at the beginning, or midway through their final year, our results are in line with expectations based on the available literature (i.e. our 0.36 effect size was measured prior to the one course most focused on critical thinking skills, and 1 to 2 semesters prior to degree completion).

Data on subcategory scores from the CCTST are scarce in the literature. However, Leach (2011) reported such data for approximately 1500 graduating seniors from various colleges at a 4-year university in the southeastern U.S. In all categories except one (analysis), our 'seniors' had higher scores than the means reported in that study. Sufficient data was provided in a recent study by Leach (2012) to allow calculation of effect sizes between UK Animal and Food Sciences seniors and his reported scores. These effect sizes were 0.43, 0.22, -0.07, 0.46, and 0.33 for the induction, deduction, analysis, inference, and evaluation categories, respectively. There are sufficient (known and unknown) demographic differences between the two populations to confound attempts to derive possible reasons for the differences. For example, the Leach (2012) student population was comprised of 80% commuters, primarily from rural counties surrounding the university. Regardless, this data set does provide some context for us to view the subcategory scores of our students.

Hatcher, D. L. 2006. Stand-alone versus integrated critical thinking courses. *The Journal of General Education* 55: 247-272.

Leach, B. T. 2012. *Critical Thinking Skills as Related to University Students' Gender and Academic Discipline*. Ph. D. Dissertation. East Tennessee State Univ.

Pascarella, E. T., and P. T. Terenzini. 2005. *How College Affects Students: Volume 2, A Third Decade of Research*. Jossey-Bass Inc., Publishers, PO Box 44305, San Francisco, CA 94144-4305.

Improvement Action

These data provide sufficient information on baseline scores of our entering freshmen and seniors enlisted in our capstone course for us to initiate planning for strategies to enhance critical thinking skills. The effect sizes, compared with some studies that have looked at specific interventions (e.g. Hatcher, 2006), suggests that there is room to increase these effect sizes within our program. However, it has been demonstrated that responses to particular interventions are highly variable (Behar-Horenstein and Niu, 2011), owing in part to the implementation strategy. Ennis (1989) presented a typology of instructional approaches for critical thinking, which included use of the 'general' approach, in which critical thinking is taught separately from subject-specific information, an infusion approach, in which critical thinking skills are taught in concert with subject specific information, and in which the critical thinking instruction is made explicit, an immersion approach, which is similar to infusion, with the exception that the critical thinking component is not made explicit to the students, and a mixed approach, which represents a combination of the general approach along with one of the other two. While recent results (Behar-Horenstein and Niu, 2011) suggest that the immersion approach may be inferior to the other approaches, programmatic, as well as individual faculty preferences, need to be considered when deciding among other approaches to derive an overall strategy for a department. Results from Hatcher (2006) indicate that critical thinking instruction is more effective when integrated across a curriculum, rather than being presented in 'stand-alone' courses. Additionally, though many different specific instructional methods have been evaluated relative to effects on critical thinking skills (inquiry-based learning, problem-based learning, computer-assisted instruction, online instruction, active learning techniques, use of concept mapping, etc.), results with the various interventions have been variable. Given the above considerations, it is clear that any attempts to enhance critical thinking skills of our students will require a program-wide, comprehensive approach. This necessitates buy-in from the entire faculty (and ultimately support from the larger university structure, as well).

Therefore, our plan is to initiate faculty workshops in which we will develop a comprehensive plan for implementation of critical thinking instruction into our curriculum. This effort will require consideration of a large number of programmatic and methodological considerations. These considerations will include: deriving an operational definition for critical thinking that will fit within our disciplinary focus area (e.g. Tucker, 1996); determining, based on available empirical evidence, the most appropriate overall strategies and specific methodologies to be used, and placing those within the context of our curriculum; determining whether additional, more holistic, assessments can/should be incorporated to arrive at more comprehensive assessment of critical thinking skills (e.g. Behar-Horenstein and Niu, 2011); identifying support mechanisms to help individual faculty members transition from traditional approaches to approaches more heavily influenced by critical thinking instruction; identifying and leveraging support from other academic areas within the university; determining resources needed for implementation (faculty training, instructional materials, etc.); identifying limitations and constraints that may affect implementation (budgetary, institutional, etc.); construction of plans to overcome identified limitations; etc. These workshops will be initiated by the Assessment Working Group, in conjunction with the Director of Undergraduate Studies and the Department Chair in the Summer of 2012 with a goal of having a plan of action for presentation to the departmental faculty by the end of Spring semester, 2013.

Behar-Horenstein, L. S., and L. Niu. 2011. Teaching Critical Thinking Skills In Higher Education: A Review Of The Literature. *Journal of College Teaching & Learning (TLC)* 8: 25-41.

Ennis, R. H. 1989. Critical thinking and subject specificity: Clarification and needed research. *Educational researcher* 18: 4-10.

Hatcher, D. L. 2006. Stand-alone versus integrated critical thinking courses. *The Journal of General Education* 55: 247-272.

Tucker, R. W. 1996. Less than critical thinking. Available at: www.intered.com/storage/jiqm/v6n3_4_ct.pdf

Reflection

A core group of faculty met on two occasions to begin the process of developing a plan for enhancing critical thinking skills. A key necessity for successful implementation of any program is buy in from all of our departmental faculty. Thus, we felt that it was important to start off with achievable objectives that would garner widespread support. Additionally, we determined that a key component necessary for enhancing critical thinking instruction was the establishment of a culture conducive to critical thinking instruction. Based on common agreement of departmental cultural barriers, we identified three key areas of focus: student decorum, academic integrity, and instructor evaluation. Task forces were established to address each of these three areas. The student decorum task force developed a classroom code of conduct, which is to be provided to each incoming student, and reinforced in syllabi and during introductory lectures in our undergraduate classes. This code of conduct formalizes our departmental expectations for in-class behavior, stressing things such as punctuality, distracting behavior, use of electronic devices, etc. The implementation of this code was voted on and approved unanimously by the faculty at our January 7, 2013 faculty meeting. The academic integrity task force developed a Departmental Honor Code statement to be signed by all students. Additionally, based on behavioral research showing that people act more ethically when reminded of ethical ideas, this task force also developed a short statement that can be used as an 'ethical reminder' at the beginning of tests and individual assignments. The adoption of this approach to help establish a culture of ethical behavior was approved unanimously by the faculty at the January meeting.

Recognizing from our own experience, as well as literature reports, that the transition to a critical-thinking-type curriculum presents unique challenges for instructors with regard to student evaluations, we recognized the need to have a more comprehensive approach to instructor evaluation. The instructor evaluation task force is still working on details of plans to expand our evaluation system to include something beyond simple end-of-course student evaluations. Specifically, they have been focused on details of a workable peer-evaluation system.

In addition, research clearly shows that student involvement beyond classroom experiences is key to development of critical thinking dispositions and skills. The Animal and Food Sciences faculty approved an implementation plan for academic enrichment experiences that was very broad-based. Our plan, which requires mandatory academic enrichment experiences by all students, allows for credit for a variety of experiences, including work experience, research, student mentorship, study abroad, and group leadership. Any credit-worthy experiences will necessarily have a rigorous academic component, supported by a learning contract with clearly defined learning objectives.

Additional action items are currently in the works. However, as these require curricular changes, they are necessarily more involved and time consuming. For example, we are discussing altering the structure of our sophomore-level, ASC 205 course to create a course focused on critical thinking. Specifically, the proposal is to change this from a careers-based course ("Livestock, People, and Their Interactions") to a course entitled "Developing Analytical and Problem Solving Skills"). An additional item of

consideration is the creation of a new, 1 credit-hour, freshman orientation course, which would allow us to, among other things, begin focusing on critical thinking skills with our incoming freshman from day 1. While these are considered very important by the faculty, the challenge remains that tradeoffs must occur for the addition or alteration of any curricular requirements. Thus, these items may be somewhat more challenging to implement as compared with the large strides made thus far.

Attachments

No Attachments

Annual Student Learning Outcomes Report

Animal and Food Sci
Food Science - Bachelor
Spring 2009-10 - FdSci - BS

Student Learning Outcome(s) Assessed

fdsci.b: Transition after graduation Graduates will be able to apply a thorough academic background in food science and related disciplines toward successful entry level employment within the food industry, or for transition to a food science graduate program.

Assessment Methods and Tools

The national organization responsible for accrediting undergraduate food science programs (including our program at the University of Kentucky) is the Institute of Food Technologists (IFT). Food Science program assessments were a component of the 2001 IFT Educational Standards (see Iwaoka 2011 for a review of these previous guidelines). In order to accomplish a systematic review of our program, and to evaluate the efficacy of food science programs, the IFT educational standards suggests using a number of tools, including a survey of graduates, to evaluate the core competencies explicated in the IFT educational standards. Our 2009-2010 food science assessment materials have focused on an overall program review of our ability to prepare students future employment (i.e., transition after graduation). The tool that we used to examine these outcomes included an alumni survey for our program analysis (as indicated by our national assessment organization) and input from food industry leaders that participate in the teaching of our capstone course (FSC 536). As a result of these efforts, the undergraduate Food Science program at the University of Kentucky was approved for accreditation in May, 2010 by the Institute of Food Technologists. Input from food industry experts. Industry personnel including Sophie Hummer (Brown-Forman Corp.) and Sue Ellen Noleck (Papa Johns). See the attached syllabus for FSC 536.

Iwaoka W. 2011 Introduction to the IFT 2011 resource guide for approval and re-approval of undergraduate food science programs. J Food Sci Educ, 10(4):54–90.

Results

Portions of Advanced Food Technology (FSC 536) were taught by a number of food industry experts including Sophie Hummer (Brown-Forman Corp.) and Sue Ellen Noleck (Papa Johns). This is the where the assessment process and industry feed-back was provided. Input from industry experts determine that our students would benefit from additional training in sensory analyses techniques

Interpretation of Results

Implementation of a Food Sensory Analysis would be developed and implemented for the first time in the Fall of 2010

Improvement Action

A course in Sensory Analyses Techniques was taught for the first time in the Fall of 2010 by Dr. Suman and Dr. Hicks.

Reflection

As part of the Food Science capstone course (FSC 536, Advanced Food Technology) food science industry experts are involved in teaching a portion of the course. Input from a number of these food science professionals indicated that our graduates and the companies that hire them would benefit from the implementation of a sensory analysis course. The new Sensory Analysis course (FSC 430) was taught for the first time in the fall of 2010. This is a biennial course and will be taught the second time in the fall of 2012. There were a number of inputs obtained from students and industry experts regarding ways to improve the content and presentation of the course material, which will be implemented in the fall of 2012. This course represents a significant improvement to our food science curriculum, but does not yet follow the standard cyclic IAP format.

Attachments

[ADVfoodtech_Syllabus.pdf](#)

[UK_FoodSciences_CoreCompetencies.pdf](#)

Student Learning Outcome(s) Assessed

fdsci.b: Transition after graduation Graduates will be able to apply a thorough academic background in food science and related disciplines toward successful entry level employment within the food industry, or for transition to a food science graduate program.

fdsci.b: Laboratory Graduates will be able to demonstrate relevant laboratory skills and a basic understanding of underlying principles of laboratory techniques.

fdsci.b: Knowledge Graduates will be able to apply a fundamental knowledge of food chemistry, microbiology, nutrition, processing, analyses and engineering toward food related research and product development.

fdsci.b: Quality assurance Graduates will be able to apply quality assurance procedures in food processing such as Hazard Analysis and Critical Control Points (HACCP) toward the production of safe and nutritious foods.

fdsci.b: Laws and regulations Graduates will be able to be able to find, understand and adhere to federal laws and regulations in the manufacturing and sale of foods and food products.

fdsci.b: Organization Graduates will be able to demonstrate and ability to manage numerous tasks and assignments in an ethical and professional manner in order to efficiently meet deadline challenges.

fdsci.b: Communication and technology Graduates will be able to demonstrate communication, computer and information technology skills necessary to obtain, analyze, interpret and convey scientific information to individuals or groups at various educational levels.

Assessment Methods and Tools

For the 2009-10 year (the first year of the internal University of Kentucky assessment process) our Food Science program outcomes were evaluated based on our recent course evaluations and our 2009 alumni survey (see attached alumni survey and listing and evaluation of our program core competencies).

Results

For the "Quality of Teaching" and "Quality of Course" the mean course evaluations were a 3.7 or greater. From the 2009 food science undergraduate survey, there were a several responses indicating that at least one alumni felt that they were less than adequately prepared.

Interpretation of Results

Because the "Quality of Teaching" and "Quality of Course" mean course evaluations were a 3.7 or greater, this indicates that our students rated both the instructors and courses as being of a very high quality. Based on the 2009 food science undergraduate survey, there were a several responses indicating that at least one alumni felt that they were less than adequately prepared in select areas. We will strive to focus on these areas for the coming years in order to improve ratings in future surveys.

Improvement Action

The course evaluations indicated that no improvements were necessary. Because the maximum obtainable score is a 4.0, it is unrealistic to expect a benchmark to be maintained above a 3.5. Selected areas of our classes addressing our core competencies will need to be improved. These will be addressed in the 2010-2011 school year by the entire food science faculty in order to obtain the benchmark in the 2011 Food Science alumni survey.

Reflection

As a result of the 2009 Food Science Alumni Survey, and 2010 Institute of Food Technologists (IFT) accreditation process for our undergraduate food science program, there were indications that we needed to improve on the opportunities for our undergraduates to development their leadership capabilities.

Attachments

[2009-10 Revised UK IAP.pdf](#)

[UK_FoodSciences_CoreCompetencies.pdf](#)

[2009_FoodSci_UGSurvey.pdf](#)

Annual Student Learning Outcomes Report

Animal and Food Sci
Food Science - Bachelor
Food Science 2010-2011

Student Learning Outcome(s) Assessed

fdsci.b: Knowledge Graduates will be able to apply a fundamental knowledge of food chemistry, microbiology, nutrition, processing, analyses and engineering toward food related research and product development.

Assessment Methods and Tools

Two field trips were organized (to Brown Forman and Givaudan) allowing the students to see how the principles and techniques in sensory evaluation are applied in food industry to develop new products. In addition, students received opportunity to interact directly with sensory R&D scientists. Students highly appreciated this approach as they were able to learn things hands on, and industry was also interested because there is an increasing demand for sensory scientists. Assessment is conducted in the form of exams, questionnaires and course evaluations.

Results

Two field trips were organized (to Brown Forman and Givaudan) allowing the students to see how the principles and techniques in sensory evaluation are applied in food industry to develop new products. In addition, students received opportunity to interact directly with sensory R&D scientists. Students highly appreciated this approach as they were able to learn things hands on, and industry was also interested because there is an increasing demand for sensory scientists.

Interpretation of Results

Based on the feedback we received from industry as well as students, we are planning to include lectures and hands on sessions by industry leaders in sensory science and more field trips in the future Sensory Analysis course (FSC 430) taught by Dr. Hicks and Dr. Suman.

Improvement Action

Include lectures and hands on sessions by industry leaders in sensory science and more field trips in the future course offerings. The sensory analysis course (FSC 430) is taught every two years by Dr. Hicks and Dr. Suman. The next time this course taught will be the Fall of 2012.

Reflection

Attachments

No Attachments

Student Learning Outcome(s) Assessed

fdsci.b: Organization Graduates will be able to demonstrate and ability to manage numerous tasks and assignments in an ethical and professional manner in order to efficiently meet deadline challenges.

Assessment Methods and Tools

2009 Alumni Survey was conducted using the online "Key Survey" web page and alumni who had obtained their undergraduate degree in food science in the last three years were included.

Results

Results from the 2009 survey two respondents indicated that they had not been provided adequate opportunity to develop their leadership capabilities.

Interpretation of Results

Evaluation of the UK Food Science Alumni Survey by Food Science Faculty and the Higher Education Review Board of the Institute of Food Technologists (IFT) during our 2010 national accreditation process concluded that the UK Food Science program should improve the opportunities for our students to develop their leadership capabilities.

Improvement Action

Increase number of officer positions available in the Food Science Club, promote involvement in the leadership positions in the Food Science Club; promote involvement in the College of Agriculture undergraduate ambassador program; make students aware of the "Community and Leadership Development" program available to students.

Reflection

During the 2010-11 period we implemented a number changes in our program, and have actively promoted the involvement of students in leadership development activities both within and outside the food science program. During the 2011 Food Science Alumni Survey the consensus was that there are now ample opportunities for leadership development within the Food Science program.

Attachments

[Survey online report_09.pdf](#)

Annual Student Learning Outcomes Report

Animal and Food Sci
Food Science - Bachelor
Food Science Core Competencies 2012

Student Learning Outcome(s) Assessed

fdsci.b: Transition after graduation Graduates will be able to apply a thorough academic background in food science and related disciplines toward successful entry level employment within the food industry, or for transition to a food science graduate program.

Assessment Methods and Tools

The national organization responsible for accrediting undergraduate food science programs (including our program at the University of Kentucky) is the Institute of Food Technologists (IFT). Food Science program assessments were a component of the 2001 IFT Educational Standards, and these guidelines were reviewed and updated in 2011 (Iwaoka, 2011). In order to accomplish a systematic review, and to evaluate the efficacy of food science programs, the IFT educational standards suggests using a number of tools including a survey of graduates to evaluate the core competencies explicated in the IFT educational standards. The current IFT resource guide for approval and re-approval of undergraduate food science programs (see attached) suggests the use of an alumni survey to assess program effectiveness.

Our 2011-1012 food science assessment materials have focused on two primary areas. One of these learning outcome areas is titled "Core competencies: Transition after graduation" and "Leadership Development". The "Transition after graduation" utilized a biennial alumni survey. This tool was approved verbally during our discussion with HERB in 2010 and addressed on page 11 of the 2011 IFT Resource guide for approval and re-approval of UG Food Science programs (see attached).

Food Science alumni who had completed their B.S. degree between 1.5 and 4 years were contacted individually by e-mail that contained a KeySurvey (<http://www.keysurveyau.com/>) link within the e-mail. Once the link was selected a KeySurvey web page with the attached survey form was opened, and after completing the survey each response was saved into the KeySurvey web system, which compiled the results presented in the attachment to this document. The online surveys are conducted every two years with the 2009 survey conducted between May 1 and July 14, 2009. The 2011 survey was conducted between May 19 and May 26, 2011. In the 2009 survey 64% of our alumni responded (7 out of 11). In 2011, 36% of the alumni responded (4 of 11). In each case, we are not always sure if the student even actually received the e-mail.

We have also attached a list of the program core competencies with a curriculum map showing where each is taught in the food science program.

Iwaoka W. 2011 Introduction to the IFT 2011 resource guide for approval and re-approval of undergraduate food science programs. J Food Sci Educ, 10(4):54–90.

2009 and 2011 Food Science undergraduate alumni survey

Results

The 2011 Food Science alumni survey indicated that after obtaining employment all respondents felt that they had been adequately prepared (ranking of 3 or above) in the core food science areas. The percentage of students that felt they had been strongly prepared (ranking of 5 out of 5) increased in the 2011 survey compared to the 2009 survey. All aspects of this report are deemed important and vital information. They are included as attachments because they are presented graphically as both text and images.

Interpretation of Results

100 percent of the respondents felt that their Food Science education from the University of Kentucky helped them obtain employment (or a position working toward an advanced degree). This is one of the primary goals of our program.

Regarding their satisfaction with the various aspects of the undergraduate Food Science program at the University of Kentucky all responses ranked their experience with a 4 or 5 on a scale of 5 (5 being most satisfied) to the following questions:

I am satisfied with the education I received;

As a student, I had adequate access to faculty (course instructors);

My food science education provided me with a broad background in food science;

My food science advisor was available when I needed him/her;

Opportunities to participate in a variety of extracurricular activities were provided.

Preparation in the following areas:

Written communication skills;

Critical thinking to new situations;

Conducting both scientific and nonscientific literature reviews;

Manage time effectively;

Skills to work in teams;

Leadership/interpersonal skills;

Understanding chemistry underlying the properties and reactions of various food components;

Knowledge of food chemistry to control reactions in foods;

Understanding major chemical reactions that limit shelf life in foods;

Laboratory techniques common to basic and applied food analyses;

Principles behind analytical techniques associated with foods;

Application of principles of food science in practical, real world, situations and problems;

Food Safety and Microbiology;

Identification of important pathogens and spoilage microorganisms food and the conditions under which they will grow:

Conditions under which pathogens are commonly inactivated or made harmless in foods:

Utilization of laboratory techniques to identify microorganisms in foods:

Understanding of and application of methods to control deterioration and spoilage;

Principles that make a food product safe for consumption;

Basic principles and practices of cleaning and sanitation in food processing operations;

Applications of principles of food science to control and assure the quality of food products;

Identification of source and variability of raw food materials and their impact on food processing operations;

While there were no aspects of our program that recieved a negative response (less than 3 out of 5) there were indications that certain areas could be improved. These areas were:

Take student suggestions to improve the food science program more seriously;

Improve academic advising

Topic areas relating to food engineering, including Energy and heat transfer applications in food processing systems; Basics of fluid flow processes; Psychrometrics and applications in drying, evaporation and air conditioning

Improvement Action

In the 2011 Food Science undergraduate alumni survey, items relating to food engineering made up the majority of responses where students felt they had only been adequately prepared (3 out of a possible 5 ranking). Our goal is to increase the number of contact hours between the students and the primary instructor of this course, and to increase the number of "strongly prepared" responses on future surveys.

Reflection

The food science program at the University of Kentucky has been accredited by the Institute of Food Technologist since 1972. As part of this accreditation, we have been involved in assessing our program and making improvements (and assessing the improvements) for many years. Most of the changes made in the last 10 years have involved major changes to the overall program including the implementation of a new course and subsequent changes to that course (FSC 430 Sensory Evaluation), evaluating the success that our alumni have in their careers after graduation and how to modify our program to improve their training, and enhancements to our student internship program. These program improvements do not necessarily follow the annual cycle and thus do not appear every year in our program assessment reports. Our Food Science program has utilized student internship activity for more than 10 years. In order to obtain credit for these activities as part of our FSC 395 course, the students have to initiate an internship contact with their employer and present an oral presentation to the Food Science faculty before the end of the fall semester. This experience enhances overall core competences of the student, allows them to gain hands on experience, and develops their leadership abilities. During the last 6 months we have improved the feedback process from employers by updating the electronic online employer feedback evaluation.

Also, we are actively involved in the process of hiring a new faculty member that has taught the food engineering course as part of our nationally accredited program. This position has a primary appointment in another department (Biosystems & Agricultural Engineering).

Attachments

[Survey online report_09.pdf](#)

[Survey online report_2011UG.pdf](#)

[IFT_ResourceGuide_UndergradFoodSciencePrograms2012_READER.pdf](#)

[UK_FoodSciences_CoreCompetencies.pdf](#)

Annual Student Learning Outcomes Report

Animal and Food Sci
Food Science - Bachelor
Food Science Leadership Development 2012

Student Learning Outcome(s) Assessed

fdsci.b: Organization Graduates will be able to demonstrate and ability to manage numerous tasks and assignments in an ethical and professional manner in order to efficiently meet deadline challenges.

Assessment Methods and Tools

The national organization responsible for accrediting undergraduate food science programs (including our program at the University of Kentucky) is the Institute of Food Technologists (IFT). Food Science program assessments were a component of the 2001 IFT Educational Standards, and these guidelines were reviewed and updated in 2011 (Iwaoka, 2011). In order to accomplish a systematic review, and to evaluate the efficacy of food science programs, the IFT educational standards suggests using a number of tools including a survey of graduates to evaluate the core competencies explicated in the IFT educational standards. The current IFT resource guide for approval and re-approval of undergraduate food science programs (see attached) suggests the use of an alumni survey to assess program effectiveness.

Our 2011-1012 food science assessment materials have focused on two primary areas. These two learning outcome areas are titled "Core competencies: Transition after graduation" and "Leadership Development". Our focus on leadership development was done in direct response to a request from the IFT Higher Education Review Board as a result of our 2010 approval (see May 17, 2010 letter). The "Transition after graduation" utilized a biennial alumni survey (see attached 2009 and 2011 surveys). This tool was approved verbally during our discussion with HERB in 2010 and addressed on page 11 of the 2011 IFT Resource guide for approval and re-approval of UG Food Science programs (see attached).

Iwaoka W. 2011 Introduction to the IFT 2011 resource guide for approval and re-approval of undergraduate food science programs. J Food Sci Educ, 10(4):54–90.

1. Identify course(s), activities, exams, etc. where data were collected: 2009 and 2011 Alumni Survey, and 2010 Institute of Food Technologists (IFT) accreditation process
2. Term/Year of collection: Fall 2009 and Fall 2011 for the Alumni Surveys, and Spring 2010 for the IFT accreditation
3. Briefly describe what data were collected and how collected: Student comments were collected as part of an on-line biennial alumni survey and members of the IFT Higher Education Review Board comments were obtained as part of our IFT Food Science undergraduate accreditation.
4. Criteria used for evaluating student work: Alumni survey, & involvement of students in leadership positions e.g., club officers and college ambassadors

Results

Responses from the 2011 Food Science alumni survey were all positive for leadership/interpersonal skill preparation as part of the UK food science program. Students have been active in leadership positions (e.g., club officers and college ambassadors). Also, involvement in leadership development courses has been promoted.

Interpretation of Results

Our activities to provide students with activities and opportunities to develop their leadership skills have been productive based on all available indicators. This is evident from the 2011 alumni survey results, the number of students involved as officers in the Food Science Club, one food science student serving as a College of Agriculture undergraduate ambassadors, and the attached minutes from our Food Science Club meeting.

Improvement Action

Continue to promote opportunities for students to pursue leadership development activities. Increase number of officer positions (and involvement) available in the Food Science Club and promote involvement in the College of Agriculture undergraduate ambassador program and community and leadership program.

Reflection

The food science program at the University of Kentucky has been accredited by the Institute of Food Technologists since 1972. As part of this accreditation, we have been involved in assessing our program and making improvements (and assessing the improvements) for many years. Most of the changes made in the last 10 years have involved major changes to the overall program including the implementation of a new course and subsequent changes to that course (FSC 430 Sensory Evaluation), evaluating the success that our alumni have in their careers after graduation and how to modify our program to improve their training, and enhancements to our student internship program. These program improvements do not necessarily follow the annual cycle and thus do not appear every year in our program assessment reports. Our Food Science program has utilized student internship activity for more than 10 years. In order to obtain credit for these activities as part of our FSC 395 course, the students have to initiate an internship contact with their employer and present an oral presentation to the Food Science faculty before the end of the fall semester. This experience enhances overall core competencies of the student, allows them to gain hands on experience, and develops their leadership abilities. During the last 6 months we have improved the feedback process from employers by updating the electronic online employer feedback evaluation.

Attachments

[2012_FoodSci_IAP_leadership.pdf](#)

[2009_FoodSci_UGSurvey.pdf](#)

[IFT_ResourceGuide_UndergradFoodSciencePrograms2012_READER.pdf](#)

[Univ of Kentucky Approval Letter 5 17 10.pdf](#)

Annual Student Learning Outcomes Report

Animal and Food Sci
Animal and Food Sciences - Master
IAP - AFS - MS - 2010

Student Learning Outcome(s) Assessed

anmlfdsci.m: Knowledge and understanding Students will demonstrate advanced knowledge and understanding in an area of emphasis offered by the Graduate Faculty in the Department of Animal and Food Sciences.

anmlfdsci.m: Data Students will demonstrate competency in the collection, analysis and interpretation of data as it relates to the scholarship of their area of emphasis.

anmlfdsci.m: Communication Students will be able to effectively communicate scientific findings orally and demonstrate competency in scholarly writing in the form of a master's thesis.

Assessment Methods and Tools

Students are assessed by their supervisory committee at the completion of their degree.

This encompasses an oral presentation over their research followed by an oral exam covering their presentation and written thesis.

Data is collected at the final exam for the degree.

All members of each supervisory committee must complete an evaluation of each student following the exam. This information includes both the oral presentation, written thesis and performance on the exam.

Students are evaluated on their knowledge of their research area, the quality of their research and their communication skills and familiarity with the literature. Since each committee includes a group of peer experts it is a very thorough evaluation process.

Results

Data is currently being collected but numbers are too low to analyze.

Action plans will be developed when sufficient data has been collected and evaluated.

Interpretation of Results

Students were rated above good in all categories. The best scores were achieved in oral communication with the poorest in written communication.

Improvement Action

Data will be shared with faculty and discussed to determine how scores can be improved.

Reflection

In this phase we had only recently implemented our assessment. There was really no data to evaluate.

Attachments

No Attachments

Annual Student Learning Outcomes Report

Animal and Food Sci
Animal and Food Sciences - Master
IAP-AFS-MS-2010-11

Student Learning Outcome(s) Assessed

anmlfdsci.m: Knowledge and understanding Students will demonstrate advanced knowledge and understanding in an area of emphasis offered by the Graduate Faculty in the Department of Animal and Food Sciences.

anmlfdsci.m: Data Students will demonstrate competency in the collection, analysis and interpretation of data as it relates to the scholarship of their area of emphasis.

anmlfdsci.m: Communication Students will be able to effectively communicate scientific findings orally and demonstrate competency in scholarly writing in the form of a master's thesis.

Assessment Methods and Tools

Students are assessed by their supervisory committee at the completion of their degree.

This encompasses an oral presentation over their research followed by an oral exam covering their presentation and written thesis.

Data is collected at the final exam for the degree.

All members of each supervisory committee must complete an evaluation of each student following the exam. This information includes both the oral presentation, written thesis and performance on the exam.

Students are evaluated on their knowledge of their research area, the quality of their research and their communication skills and familiarity with the literature. Since each committee includes a group of peer experts, it is a very thorough evaluation process.

Results

Data continue to be collected and we have analyzed the rather limited data set. Action plans will be fully developed when more complete data are available, but preliminary analyses are below.

Interpretation of Results

Students were rated above good in all categories. The best scores were achieved in oral communication with the poorest in written communication.

Improvement Action

Data have been shared with faculty and graduate faculty are discussing ways to enhance the overall knowledge base of masters students, with a particular focus on correcting deficiencies in the area of general animal metabolism. A new graduate course in Macronutrient Metabolism of Domestic animals has been developed and will be taught for the first time in Spring, 2012. Progress in this course will be followed closely.

The resource of this report item is not reachable.

Reflection

During the second year we have a solid collection of data to evaluate. The process was working and provided a means to evaluate. We compiled this data and presented it at a faculty meeting. Members were very satisfied and no changes were proposed.

Attachments

[MS program analysis - assessment.jpg](#)

Annual Student Learning Outcomes Report

Animal and Food Sci
Animal and Food Sciences - Master
IAP-AFS-MS-2012

Student Learning Outcome(s) Assessed

anmlfdsci.m: Knowledge and understanding Students will demonstrate advanced knowledge and understanding in an area of emphasis offered by the Graduate Faculty in the Department of Animal and Food Sciences.

anmlfdsci.m: Data Students will demonstrate competency in the collection, analysis and interpretation of data as it relates to the scholarship of their area of emphasis.

anmlfdsci.m: Communication Students will be able to effectively communicate scientific findings orally and demonstrate competency in scholarly writing in the form of a master's thesis.

Assessment Methods and Tools

- The department developed an evaluation rubric and all students are assessed by their supervisory committee at the completion of their degree following their oral presentation and examination over their thesis.
- All members of each supervisory committee must complete an evaluation of each student following the exam. This information includes an oral presentation, written thesis, and performance on a final examination over the thesis.
- Since each committee includes a group of peer experts, it is a very thorough evaluation process.

Results

AREA	Current Period, n=1	Total, n=13
Knowledge and understanding	3.36	3.46
Data	3.70	3.57
Oral Communication	3.00	3.72
Written Communication	3.70	3.44

Interpretation of Results

Students were rated above good in all categories. The best scores were achieved in oral communication, with the poorest in written communication.

Improvement Action

Data were shared with faculty and discussed to determine how scores can be improved. There was general satisfaction with overall performance. There was discussion in regards to consistently lower scores in the knowledge and writing categories and it was felt that students should be encouraged to read literature and write in grad courses and that addition of a course in intermediary metabolism would greatly benefit the students.

Reflection

The process of assessment has allowed our program to target specific skills that we consider valuable in students who have completed our program. These skills are general and can be applied across disciplinary lines. Since the inception of this evaluation process we have determined that our students generally perform above the “good” category in all areas of evaluation. This is indicative of the overall quality of the students and the training program. That said, the assessment has allowed the determination of critical areas for improvement.

The first of these that has been consistently observed is lower scores in our assessment of Knowledge and Written Communication. Based on the presentation of these results and discussion with ASC faculty it was felt these shortcomings relate most to students lack of experience with scientific writing and a lack of familiarity with the scientific literature.

From this discussion it is expected that actions will contribute to future improvements in this area.

- Instructors of graduate courses are encouraged to make more reading and writing assignments and make better use of the scientific literature in their courses.
- We are planning a new section of ASC 771 Seminar that is solely for first semester graduate students (starting Fall 2013). The main goals would be to get students into their respective scientific societies and reading the literature sooner (a process that has been lost with on-line journals). The plan is to inform students and to encourage them to become student members of their respective scientific societies. To have them to receive and read their scientific journals. Students would also read and present individual papers weekly.

Attachments

No Attachments

Annual Student Learning Outcomes Report

Animal and Food Sci
Animal and Food Sciences - Doctor
IAP - AFS - PhD - 2010

Student Learning Outcome(s) Assessed

anmlfdsci.d: Knowledge Students will demonstrate a thorough command of knowledge in an area of emphasis offered by the Graduate Faculty in the Department of Animal and Food Sciences.

anmlfdsci.d: Experiments Students will demonstrate the ability to apply critical scientific thought in the application of hypothesis formation, and the design and execution of experiments.

anmlfdsci.d: Data Students will demonstrate competency in the collection, analyses and interpretation of data as it relates to the scholarship of their area of emphasis.

anmlfdsci.d: Communication Students will be able to effectively communicate scientific findings orally and demonstrate competency in scholarly writing in the form of a doctoral dissertation.

Assessment Methods and Tools

Students are assessed by their supervisory committee at the completion of their degree. This encompasses an oral presentation over their research, followed by an oral exam covering their presentation and written dissertation.

Data is collected at the final exam for the degree.

All members of each supervisory committee must complete an evaluation of each student following the exam. This information includes both the oral presentation, written thesis and performance on the exam.

Students are evaluated on their knowledge of their research area, the quality of their research and their communication skills and familiarity with the literature. Since each committee includes a group of peer experts, it is a very thorough evaluation process.

Results

Data is currently being collected but numbers are too low to analyze.

Action plans will be developed when sufficient data has been collected and evaluated.

Interpretation of Results

Students were rated above good in all categories. The best scores were achieved in oral communication with the poorest in knowledge and understanding.

Improvement Action

Data will be shared with faculty and discussed to determine how scores can be improved.

Reflection

In this phase we had only recently implemented our assessment. There was really no data to evaluate.

Attachments

No Attachments

Annual Student Learning Outcomes Report

Animal and Food Sci
Animal and Food Sciences - Doctor
IAP - AFS - PhD - 2010-2011

Student Learning Outcome(s) Assessed

anmlfdsci.d: Knowledge Students will demonstrate a thorough command of knowledge in an area of emphasis offered by the Graduate Faculty in the Department of Animal and Food Sciences.

anmlfdsci.d: Experiments Students will demonstrate the ability to apply critical scientific thought in the application of hypothesis formation, and the design and execution of experiments.

anmlfdsci.d: Data Students will demonstrate competency in the collection, analyses and interpretation of data as it relates to the scholarship of their area of emphasis.

anmlfdsci.d: Communication Students will be able to effectively communicate scientific findings orally and demonstrate competency in scholarly writing in the form of a doctoral dissertation.

Assessment Methods and Tools

Students are assessed by their supervisory committee at the completion of their degree. this encompasses an oral presentation over their research, followed by an oral exam covering their presentation and written dissertation.

Data is collected at the final exam for the degree.

All members of each supervisory committee must complete an evaluation of each student following the exam. This information includes both the oral presentation, written dissertation and performance on the exam.

Students are evaluated on their knowledge of their research area, the quality of their research and their communication skills and familiarity with the literature. Since each committee includes a group of peer experts, it is a very thorough evaluation process.

Results

Data continue to be collected and we have analyzed the rather limited data set.

Action plans will be fully developed when more complete data are available, but preliminary analyses are below.

Interpretation of Results

Students were rated above good in all categories. The best scores were achieved in oral communication with the poorest in knowledge and understanding.

Improvement Action

Data have been shared with faculty and graduate faculty are discussing ways to enhance the overall knowledge base of doctoral students, with a particular focus on correcting deficiencies in the area of general animal metabolism. A new graduate course in Macronutrient Metabolism of Domestic animals has been developed and will be taught for the first time in Spring, 2012. Progress in this course will be followed closely.

The resource of this report item is not reachable.

Reflection

During the second year we have a solid collection of data to evaluate. The process was working and provided a means to evaluate. We compiled this data and presented it at a faculty meeting. Members were very satisfied and no changes were proposed.

Attachments

[PhD program analysis - assessment.jpg](#)

Annual Student Learning Outcomes Report

Animal and Food Sci
Animal and Food Sciences - Doctor
IAP - AFS - PhD - 2012

Student Learning Outcome(s) Assessed

anmlfdsci.d: Knowledge Students will demonstrate a thorough command of knowledge in an area of emphasis offered by the Graduate Faculty in the Department of Animal and Food Sciences.

anmlfdsci.d: Experiments Students will demonstrate the ability to apply critical scientific thought in the application of hypothesis formation, and the design and execution of experiments.

anmlfdsci.d: Data Students will demonstrate competency in the collection, analyses and interpretation of data as it relates to the scholarship of their area of emphasis.

anmlfdsci.d: Communication Students will be able to effectively communicate scientific findings orally and demonstrate competency in scholarly writing in the form of a doctoral dissertation.

Assessment Methods and Tools

- The department developed an evaluation rubric and all students are assessed by their supervisory committee at the completion of their degree following their oral presentation and examination over their dissertation.
- All members of each supervisory committee must complete an evaluation of each student following the exam. This information includes an oral presentation, written dissertation, and performance on a final examination over the dissertation.
- Since each committee includes a group of peer experts, as well as two members outside the department, it is a very thorough evaluation process.

Results

AREA	Current Period, n=3	Total, n=13
Knowledge and understanding	3.07	3.22
Critical Thinking	3.22	3.36
Data	3.17	3.31
Oral Communication	3.60	3.58
Written Communication	3.55	3.45

Interpretation of Results

Students were rated above good in all categories. The best scores were achieved in oral communication with the poorest in knowledge and understanding.

Improvement Action

Data were shared with faculty and discussed to determine how scores can be improved. There was general satisfaction with overall performance. There was discussion in regards to consistently lower scores in the knowledge category and it was felt that students should be encouraged to read literature in grad courses and that addition of a course in intermediary metabolism would greatly benefit the students.

Reflection

The process of assessment has allowed our program to target specific skills that we consider valuable in students who have completed our program. These skills are general and can be applied across disciplinary lines. Since the inception of this evaluation process we have determined that our students generally perform above the “good” category in all areas of evaluation. This is indicative of the overall quality of the students and the training program. That said, the assessment has allowed the determination of critical areas for improvement.

The first of these that has been consistently observed is lower scores in our assessment of Knowledge. Based on the presentation of these results and discussion with ASC faculty it was felt these shortcomings relate most to students lack of familiarity with the scientific literature and a general weakness in fundamentals of metabolism.

From this discussion it is expected that actions will contribute to future improvements in this area.

- Development of a grad course in intermediary metabolism has been initiated and is being offered currently as a special problems course for ASC students.
- Instructors of graduate courses are encouraged to make more reading assignments and make better use of the scientific literature in their courses.
- We are planning a new section of ASC 771 Seminar that is solely for first semester graduate students (starting Fall 2013). The main goals would be to get students into their respective scientific societies and reading the literature sooner (a process that has been lost with on-line journals). The plan is to inform students and to encourage them to become student members of their respective scientific societies. To have them to receive and read their scientific journals. Students would also read and present individual papers weekly.

Attachments

No Attachments

University of Kentucky
Assessment Inventory for General Education and Degree Programs

College: Agriculture

Department: Animal and Food Sciences

General Education/Degree Program: Animal Sciences

Undergraduate/Graduate/Professional: Undergraduate

Part I: Inventory of Statements and Plans

1. Is there a written mission statement or statement of purpose for this program and/or the department or unit within which the program is located?

 X Yes No
If Yes, please copy and paste, attach a copy or send a link

2. Have you articulated student learning outcomes which describe what a student should know or be able to do when they have completed this program?

 X Yes No
If Yes, please copy and paste, attach a copy or send a link

3. Have you chosen a method(s) of assessment for measuring student learning outcomes?

 X Yes No
If Yes, please copy and paste, attach a copy or send a link

4. Do you have a document (such as a curriculum map) that links student learning outcomes to the program curriculum?

 X Yes No
If Yes, please copy and paste, attach a copy or send a link

5. Have you determined an assessment cycle and fully articulated an assessment plan?

 Yes X No
If Yes, please copy and paste, attach a copy or send a link

6. Does this program have an accreditation process(es) separate from SACS?

 Yes X No

Part II: Assessment of Outcomes

During the past year, has your program used any of the following for assessment of outcomes?

Please indicate:

"A" if currently being used

"B" if not currently being used but interested in using

"C" if not appropriate/applicable

**Note: the following is not an exhaustive list; please feel free to add any other direct or indirect methods of assessment you may use, as necessary.*

Direct methods of assessment:

(Enter A, B, C)

1. Comprehensive exams	<u> B </u>
2. Writing proficiency exams	<u> B </u>
3. National examinations assessing subject matter knowledge (e.g. Major Field Achievement Test)	<u> C </u>
4. Graduate Record Exam General Test (GRE)	<u> C </u>
5. GRE Subject Test	<u> C </u>
6. Certificate examinations	<u> C </u>
7. Licensure examinations	<u> C </u>
8. Locally developed pre-test or post-test for subject matter knowledge	<u> B </u>
9. Major paper/project	<u> A </u>
10. Portfolio containing representative examples of student work	<u> B </u>
11. Capstone course work (e.g. senior level seminars)	<u> A </u>
12. Audio/video recording of presentations/performances	<u> A </u>
13. Employer/supervisor internship/practicum report	<u> C </u>
14. Summative performance assessment (i.e. recitals, art exhibits, etc.)	<u> C </u>
15. Theses/Dissertations	<u> C </u>
16. Student publications and presentations of research work	<u> C </u>
17. Documented lab demonstrations/exercises	<u> C </u>
18. Other: <u> California Critical Thinking Skills Test </u>	<u> A </u>
<u> California Critical Thinking Dispositions Assessment </u>	<u> A </u>
<u> Peer-evaluation assessments from capstone team-projects </u>	<u> A </u>

Part II: Assessment of Outcomes - Continued

Indirect methods of assessment:

(Enter A, B, C)

- | | |
|--|-------------------|
| 1. Job placement of graduating students | <u> B </u> |
| 2. Employer surveys and questionnaires | <u> B </u> |
| 3. Graduate School acceptance rates | <u> B </u> |
| 4. Student graduation/retention rates | <u> B </u> |
| 5. Exit Interviews | <u> C </u> |
| 6. Student satisfaction surveys | <u> B </u> |
| 7. Student Course evaluations | <u> A </u> |
| 8. Focus group discussions | <u> C </u> |
| 9. Alumni surveys | <u> B </u> |
| 10. Tracking of alumni honors, awards, and achievements at local, state, and national levels | <u> C </u> |
| 11. Identification and assessment of at-risk students | <u> C </u> |
| 12. Analysis of student grade distributions | <u> B </u> |
| 13. Examination of information contained in department's own database | <u> B </u> |
| 14. Other evaluations of course instruction (e.g., chair or peer review) | <u> B </u> |
| 15. Curriculum/syllabus analysis (e.g., analysis of transfer student preparation) | <u> B </u> |
| 16. Community perception of program effectiveness | <u> C </u> |
| 17. Community service/volunteerism participation | <u> C </u> |
| 18. Other: _____ | <u> </u> |
| _____ | <u> </u> |
| _____ | <u> </u> |

Part III: Other Information

1. Has this program used any of the direct or indirect methods listed above to improve student learning, operational effectiveness, student services, and/or general operations? _____ Yes X No

If Yes, please briefly note 1 - 3 examples

NOTE: have just completed the first semester using the assessments indicated - improvements planned for subsequent semester:

Example 1:

Example 2:

Example 3:

2. What resources (i.e., training, personnel, technology, etc.) does this program need to develop and/or implement better methods for assessing and improving student outcomes and program effectiveness?

Personnel support for data compilation/analysis;

Funds to support provision of standardized examinations (California Critical Thinking Assessments)

Interdepartmental facilitation (within the College and between colleges - for example to allow for collection of writing artifacts from GEN or ENG courses).

3. Please list any additional comments or concerns.

Completed by: Eric Vanzant & Robert Harmon

Date: 1/7/09

Department of Animal and Food Sciences

Mission Statement

The mission of the Department of Animal and Food Sciences is to:

- develop, improve, and promote sustainable animal production systems;
- improve the health and well-being of animals in food and non-food production systems;
- enhance the quality, utilization and safety of food products;
- facilitate life-long learning through:
 - creative research and discovery
 - challenging and encompassing education
 - effective technology transfer

Department of Animal and Food Sciences
Animal Science Undergraduate Curriculum Map

	Domestic Animal Biology (Silvia)	Applications of Animal Science (Ely/Aaron)	Livestock, People, and Their Interactions (Edgerton)	Meat Science (Rentfrow)	Equine Anatomy and Conformation (Carmago-Stutzman)	Equine Management (Rossano)	Animal Physiology (Urschel)	Poultry Production (Cantor)	Animal Genetics (Thriff)	Reproductive Physiology (Silvia/Anderson)	Animal Nutrition and Feeding (Lindemann/Vanzant)	Sheep Science (Ely)	Beef Cattle Science (Thriff)	Swine Production (Cromwell)	Equine Science (Coleman)	Dairy Cattle Science (Silvia)	Capstone (Pescatore/Vanzant)	Milk Secretion (R. Harmon)
Learning Outcomes	101	102	205	300	310	320	325	340	362	364	378	404G	406	408G	410G	420G	470	564
a. Knowledge & application of scientific principles	I	I	I	E	E	E	E	A	E	E	E	A	A	A	A	A	A	E
b. Support positions and demonstrate communication skills			I	R		R	R				R			R	R	R	A	R
c. Respect diverse viewpoints/derive solutions to challenges	I		I	R				R				R		R		R	A	
d. Acquisition, assimilation, analysis and reporting of info.	I	R	I	R		R	R	E	R	R	R	A	A	A	E	A	A	R
e. Teamwork	I	I	R	R	R		R		R	R		R	R	R	R	R	A	

I = Introduced; R = Reinforced; E = Emphasized; A = Applied

Learning Outcomes:

a. Students will demonstrate knowledge of scientific principles and the application of those principles to animal and food production systems

b. Students will formulate and coherently support positions using written, oral, and visual communication skills.

c. Students will recognize and respect diverse viewpoints when deriving solutions to challenges related to animal and food systems.

d. Students will effectively acquire, assimilate, analyze and report scientific information.

e. Students will demonstrate the ability to work effectively in team environments.

**Department of Animal and Food Sciences
Curriculum Map Detail**

<u>ASC 101</u>	DOMESTIC ANIMAL BIOLOGY (Silvia)
a. Knowledge & application of scientific principles	this is the principal objective, introduction to the scientific disciplines that make up animal science
b. Support positions and demonstrate communication skills	
c. Respect diverse viewpoints/derive solutions to challenges	In introductory remarks, I point out both tangible and intangible value of animals. We discuss the nutritive value of animal food products in a healthy human diet and also point out the consequences of over consumption. The pros and cons of a vegetarian diet are also mentioned. There is one lab session devoted to scientific study of animal behavior and its application. This is then discussed in the context of assessing animal well-being. In the last lecture period, we give a brief overview of some of the issues that confront animal agriculture in a manner that I perceived as balanced
d. Acquisition, assimilation, analysis and reporting of info.	In several labs, students are required to make observations, record data and draw conclusions. In one lab, students are given a data set and asked to calculate means, draw graphs and interpret the results.
e. Teamwork	In lab, students are required to work in groups but no group projects are assigned
<u>ASC 102</u>	APPLICATIONS OF ANIMAL SCIENCE (Ely/Aaron)
a. Knowledge & application of scientific principles	students gain knowledge of and apply the principles of livestock production based on scientific investigations
b. Support positions and demonstrate communication skills	
c. Respect diverse viewpoints/derive solutions to challenges	
d. Acquisition, assimilation, analysis and reporting of info.	Students are required to conduct experiments. In 102 students feed chicks and lambs different diets, weigh chicks and lambs, and calculate ADG, feed intake etc.
e. Teamwork	Students work in teams in each of the previously described environments
<u>ASC 205</u>	LIVESTOCK, PEOPLE AND THEIR INTERACTIONS (Edgerton)
a. Knowledge & application of scientific principles	This class is not strong in any of the areas, but includes components of each. The guest speakers frequently touch on how they are applying scientific knowledge and principles in their careers and students sometimes ask technical questions which require understanding of the principles to follow the discussion of how those principles are being applied
b. Support positions and demonstrate communication skills	Students write a review of each speaker, successful completion of which requires that they communicate why the speakers career is or is not a good fit for them.
c. Respect diverse viewpoints/derive solutions to challenges	Students hear a wide variety of perspectives from the speakers including: "you must get the highest GPA possible", "Grades really don't matter in the real world", "You've got to hone your interview skills", "I just fell into this job by chance". This class does a good job of helping them recognize that there are diverse paths and mindsets which lead to a successful career.
d. Acquisition, assimilation, analysis and reporting of info.	The weekly reviews give students frequent opportunities to acquire, assimilate, analyze and report information. However, the focus is on their impressions so we do not critically evaluate their analysis.
e. Teamwork	Their final project (creating an executive summary of a job in the field of animal sciences) may be done in teams and most elect to do it as a group project. The department would not want to rely on ASC 205 as the assessment tool for any of these areas, but I think it contributes to all in some degree.

**Department of Animal and Food Sciences
Curriculum Map Detail**

<u>ASC 300</u>	MEAT SCIENCE (Rentfrow)
a. Knowledge & application of scientific principles	In the past couple years I have tried to have at least two or more thought questions that require the students to apply the knowledge in class. Plus, I try to get them to think about the these principles during lecture, which also covers the learning outcomes in part d.
b. Support positions and demonstrate communication skills	This area I do cover in class, but not as much as I would like to. At the end of the semester they create a sausage product, which covers parts a, b, and e, and then present thier products to the class. The Meats Judging Team does a better job of developing communication skills.
c. Respect diverse viewpoints/derive solutions to challenges	This is a touchy area and comes to light when we discuss organic, natural, grass-fed, etc. Some of the class, normally the rural farm kids, feel like they are getting attacked. Others have no opinion on these topics. Sometimes this creates heated discussion.
d. Acquisition, assimilation, analysis and reporting of info.	The final sausage product in class is the best way for the students to apply the knowledge in class and analyze how to develop a sausage for a target audience.
e. Teamwork	The current generation of students prefer to work in groups. In ASC 300, the students work in groups durning the harvesting and fabrication of the carcasses used in class. Furthermore, they work together on developing their sausage product at the end of the semester.
<u>ASC 310</u>	EQUINE ANATOMY AND CONFORMATION (Camargo-Stutzman)
a. Knowledge & application of scientific principles	Anatomy is a foundational subject, upon which other subjects are built upon. Students have to learn the anatomy of the systems to then learn physiology and other production issues.
b. Support positions and demonstrate communication skills	
c. Respect diverse viewpoints/derive solutions to challenges	
d. Acquisition, assimilation, analysis and reporting of info.	
e. Teamwork	They have to work in teams to dissect organs. Each person helping their team mate so their final project is done with excellence.
<u>ASC 320</u>	EQUINE MANAGEMENT (Rossano)
a. Knowledge & application of scientific principles	emphasize knowledge and application of scientific principals through lecture and laboratory. Learning outcomes are assessed both with written exams and lab practical exams.
b. Support positions and demonstrate communication skills	requires students to develop a pasture renovation strategy and explain in writing why they chose the strategy they did. This assigment also includes a written qualitative assessment of the fields.
c. Respect diverse viewpoints/derive solutions to challenges	i haven't done much with diversity of viewpoints in ASC 320 beyond acknowledging that they exist.
d. Acquisition, assimilation, analysis and reporting of info.	Two assignments in ASC 320 involve student-generated original data that is then analyzed and interpreted by the students. The assignments are done as homework and some of the knowledge and concepts involved are tested in exams in exams as well.
e. Teamwork	Teamwork is involved in laboratory exercises in ASC 320, but team projects with group grades are not assigned in this class.

**Department of Animal and Food Sciences
Curriculum Map Detail**

<u>ASC 325</u>	ANIMAL PHYSIOLOGY (Urschel)
a. Knowledge & application of scientific principles	Animal Physiology teaches the scientific concepts related to animal function. In order to complete this class, students must pass exams that require them to know the information and apply the information that they know to other related situations.
b. Support positions and demonstrate communication skills	I do a group presentation assignment where students are put into groups of 2 and each group is assigned to a different hormone. Each group must prepare a 5 minute presentation to the class and a summary sheet about their hormone to "teach" the rest of the class.
c. Respect diverse viewpoints/derive solutions to challenges	
d. Acquisition, assimilation, analysis and reporting of info.	One of the requirements of the hormone project was that each group used at least 2 peer-reviewed journal articles. Additionally, I have 2 other assignments where I assign a peer-reviewed journal article relating to the topic areas in class and students must write a 2 - 3 page summary about the paper, suggest areas of future research based on the findings of the paper and relate the material back to topics covered in class.
e. Teamwork	The hormone group project described in part b. Additionally, I have noticed that many students in the group have formed study groups to help each other learn the class material.
<u>ASC 340</u>	POULTRY PRODUCTION (Cantor)
a. Knowledge & application of scientific principles	Students apply knowledge of avian anatomy, physiology, embryology, nutrition, etc., to housing management, feeding programs, incubation, disease control, etc. in assignments, quizzes and exams.
b. Support positions and demonstrate communication skills	
c. Respect diverse viewpoints/derive solutions to challenges	Diverse production systems are examined with respect to how they address the economic, environmental, and welfare concerns of poultry production.
d. Acquisition, assimilation, analysis and reporting of info.	Students are required to acquire knowledge using a variety of hands-on and other sources (lectures, text, web links, etc.) to complete information using spreadsheets and other formats to complete assignments.
e. Teamwork	
<u>ASC 362</u>	ANIMAL GENETICS (Thrift)
a. Knowledge & application of scientific principles	Major animal genetic concepts regarding biological variation, selection procedures and mating systems are developed in class. Students have to utilize these genetic concepts to bring about genetic change in a beef cattle simulation program for the single trait, yearling weight.
b. Support positions and demonstrate communication skills	Considerable homework assignments are made whereby students take the information presented in class and formulate solutions to specific genetic situations such as projected change from selecting for a specific trait or utilization of specific mating systems.
c. Respect diverse viewpoints/derive solutions to challenges	
d. Acquisition, assimilation, analysis and reporting of info.	
e. Teamwork	Students work together in weekly labs on situations involving projected changes in animal populations through utilization of selection or specific mating systems.

**Department of Animal and Food Sciences
Curriculum Map Detail**

<u>ASC 364</u>	REPRODUCTIVE PHYSIOLOGY OF FARM ANIMALS (Silvia/Anderson)
a. Knowledge & application of scientific principles	this is the main function of the course
b. Support positions and demonstrate communication skills	
c. Respect diverse viewpoints/derive solutions to challenges	
d. Acquisition, assimilation, analysis and reporting of info.	this builds directly on the lab experience started in ASC 101. Students record observations, collect data and interpret their results.
e. Teamwork	again, students work in groups
<u>ASC 378</u>	ANIMAL NUTRITION AND FEEDING (Lindemann/Vanzant)
a. Knowledge & application of scientific principles	The focus of the course - most of the content and assessment is centered around knowledge and application of nutritional facts/concepts.
b. Support positions and demonstrate communication skills	A few short writing assignments given as homeworks. Some of these require them to take a position on an issue (i.e. antibiotic use in livestock) and support it with research.
c. Respect diverse viewpoints/derive solutions to challenges	
d. Acquisition, assimilation, analysis and reporting of info.	Focus in lectures and labs on reading and interpreting graphical and tabular data. Diet formulation, spreadsheet skills are taught and assessed - relates to assimilation and analysis
e. Teamwork	
<u>ASC 404G</u>	SHEEP SCIENCE (Ely)
a. Knowledge & application of scientific principles	students gain knowledge of and apply the principles of livestock production based on scientific investigations
b. Support positions and demonstrate communication skills	
c. Respect diverse viewpoints/derive solutions to challenges	students develop a farm plan for a 200 ewe flock. They are required to derive a lambing season that will theoretically benefit them most economically.
d. Acquisition, assimilation, analysis and reporting of info.	Students are required to conduct experiments. In 404G, students calculate gestation and lactation rations which they feed to an assigned pen of ewes in laboratories.
e. Teamwork	Students work in teams in each of the previously described environments
<u>ASC 406</u>	BEEF CATTLE SCIENCE (Thrift)
a. Knowledge & application of scientific principles	Major beef cattle production concepts are presented in class after which these concepts are observed in practice or applied to specific beef cattle operations in laboratory portion of the course.
b. Support positions and demonstrate ...	
c. Respect diverse viewpoints/derive ...	
d. Acquisition, assimilation, analysis and reporting of info.	Throughout the semester, students are assigned specific homework assignments for each segment of the course. Students have to assimilate and report information relating to each course segment.
e. Teamwork	When routine beef cattle management practices (ID, implanting, castration, deworming, etc.) are conducted in lab, students have to work together as a team to complete the work in a timely manner.

**Department of Animal and Food Sciences
Curriculum Map Detail**

<u>ASC 408G</u>	SWINE PRODUCTION (Cromwell)
a. Knowledge & application of scientific principles	Review basic principles of breeding, reproduction, nutrition, diseases and apply them to management programs for swine.
b. Support positions and demonstrate communication skills	Assigned readings in National Hog Farmer magazine and students evaluate what they have read and draw conclusions.
c. Respect diverse viewpoints/derive solutions to challenges	Discuss different types of swine production and management from outside systems to total confinement.
d. Acquisition, assimilation, analysis and reporting of info.	Students attend sows that farrow and keep records on feed consumption and health of sows and growth of nursing piglets.
e. Teamwork	Work together in teams on the sow farrowing project.
<u>ASC 410G</u>	EQUINE SCIENCE (Coleman)
a. Knowledge & application of scientific principles	use the information from previous classes to understand industry practices
b. Support positions and demonstrate communication skills	they give presentations in class and write papers evaluating research papers.
c. Respect diverse viewpoints/derive solutions to challenges	
d. Acquisition, assimilation, analysis and reporting of info.	as noted in the statement preceeding this one
e. Teamwork	I have one team/ group activity that results in both a team written paper and an oral presentation
<u>ASC 420G</u>	DAIRY CATTLE SCIENCE (Silvia)
a. Knowledge & application of scientific principles	Objective is for students to understand how modern dairy operations function. Emphasis is on the application of scientific principals management of dairy cows
b. Support positions and demonstrate communication skills	<i>Applies to b., d., and e.</i> Students are required to work in teams to visit and evaluate a dairy operation, then report to the class on the strengths and weaknesses of the operation and give recommendations for improvement.
c. Respect diverse viewpoints/derive solutions to challenges	students are presented with a variety of approaches to running a dairy from the large, intensive, confinement operations to organic, pasture based. All approaches are considered with respect. two hours of lecture time are devoted to the subject of animal well-being
d. Acquisition, assimilation, analysis and reporting of info.	several homework assignments are given in which analysis of data is required. In one lab period, data on heifer weight and height are collected for subsequent analysis.
e. Teamwork	see (b) above

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Curriculum Map Detail**

<u>ASC 470</u>	CAPSTONE FOR ANIMAL AGRICULTURE (Vanzant/Pescatore)
a. Knowledge & application of scientific principles	Foundational knowledge acquired in previous classes is used to formulate positions on specific topics related to animal agriculture.
b. Support positions and demonstrate communication skills	White paper requires development and documented support of a position on a potentially controversial subject. Symposium presentation (which will be evaluated by faculty) addresses oral and visual communication components.
c. Respect diverse viewpoints/derive solutions to challenges	Because the subjects are potentially controversial, students must understand and incorporate opposing viewpoints and offer rebuttals to opposing arguments.
d. Acquisition, assimilation, analysis and reporting of info.	Directly addressed in the preparation of their white papers
e. Teamwork	The projects are group projects that require them to work within randomly assigned groups.
<u>ASC 564</u>	MILK SECRETION (R. Harmon)
a. Knowledge & application of scientific principles	Students must demonstrate knowledge of lactation in the following areas: anatomy, cytology, hormonal control, synthetic pathways, and epidemiology and control of mastitis. b & d: Students are required to select, read, analyze and summarize two journal articles (of their choice) in the field of lactation and write a 2-page summary of each one.
b. Support positions and demonstrate communication skills	<i>Applies to b & d:</i> Students are required to select, read, analyze and summarize two journal articles (of their choice) in the field of lactation and write a 2-page summary of each one.
c. Respect diverse viewpoints/derive solutions to challenges	
d. Acquisition, assimilation, analysis and reporting of info.	see (b) above
e. Teamwork	

Department of Animal and Food Sciences - Assessment Methods

Outcome	Tool	Status
Demonstrate knowledge of scientific principles and the application of those principles to animal and food production systems	Comprehensive exam - designed "in-house"	To be designed (FA 2010)
Formulate and coherently support positions using written, oral, and visual communication skills.	Written - Artifacts from GEN 100 & ENG 203? Oral/Visual - Capstone presentation w/ faculty evaluations	Details to be worked out (FA 2010) In place - FA 2009
Recognize and respect diverse viewpoints when deriving solutions to challenges related to animal and food systems.	Capstone written reports	In place - FA 2009
Effectively acquire, assimilate, analyze and report scientific information.	Capstone written reports California Critical Thinking Skills Test California Critical Thinking Dispositions Assessment	In place - FA 2009 In place - FA 2009 In place - FA 2009
Demonstrate the ability to work effectively in team environments.	Capstone - instructor and peer evaluations	In place - FA 2009

University of Kentucky
Assessment Inventory for General Education and Degree Programs

College: _____ Agriculture _____

Department: _____ Animal & Food Sciences _____

General Education/Degree Program: _____ Food Science _____

Undergraduate/Graduate/Professional: _____ Undergraduate _____

Part I: Inventory of Statements and Plans

1. Is there a written mission statement or statement of purpose for this program and/or the department or unit within which the program is located?
See <http://www.uky.edu/Ag/AnimalSciences/about/missionstatement.html>
 Yes No
If Yes, please copy and paste, attach a copy or send a link
2. Have you articulated student learning outcomes which describe what a student should know or be able to do when they have completed this program? See attachment B
 Yes No
If Yes, please copy and paste, attach a copy or send a link
3. Have you chosen a method(s) of assessment for measuring student learning outcomes?
See attachment C
 Yes No
If Yes, please copy and paste, attach a copy or send a link
4. Do you have a document (such as a curriculum map) that links student learning outcomes to the program curriculum? See attachment D
 Yes No
If Yes, please copy and paste, attach a copy or send a link
5. Have you determined an assessment cycle and ~~fully~~ articulated an assessment plan?
See attachments C & D & E
 Yes No
If Yes, please copy and paste, attach a copy or send a link
6. Does this program have an accreditation process(es) separate from SACS?
 Yes No

Part II: Assessment of Outcomes

During the past year, has your program used any of the following for assessment of outcomes?

Please indicate:

"A" if currently being used

"B" if not currently being used but interested in using

"C" if not appropriate/applicable

**Note: the following is not an exhaustive list; please feel free to add any other direct or indirect methods of assessment you may use, as necessary.*

Direct methods of assessment:

(Enter A, B, C)

- | | |
|---|---------|
| 1. Comprehensive exams | __ C __ |
| 2. Writing proficiency exams | __ C __ |
| 3. National examinations assessing subject matter knowledge (e.g. Major Field Achievement Test) | __ C __ |
| 4. Graduate Record Exam General Test (GRE) | __ C __ |
| 5. GRE Subject Test | __ C __ |
| 6. Certificate examinations | __ C __ |
| 7. Licensure examinations | __ C __ |
| 8. Locally developed pre-test or post-test for subject matter knowledge | __ C __ |
| 9. Major paper/project | __ C __ |
| 10. Portfolio containing representative examples of student work | __ C __ |
| 11. Capstone course work (e.g. senior level seminars) | __ A __ |
| 12. Audio/video recording of presentations/performances | __ C __ |
| 13. Employer/supervisor internship/practicum report | __ A __ |
| 14. Summative performance assessment (i.e. recitals, art exhibits, etc.) | __ C __ |
| 15. Theses/Dissertations | __ C __ |
| 16. Student publications and presentations of research work | __ C __ |
| 17. Documented lab demonstrations/exercises | __ A __ |
| 18. Other: _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Part II: Assessment of Outcomes - Continued

Indirect methods of assessment:	(Enter A, B, C)
1. Job placement of graduating students	___ A ___
2. Employer surveys and questionnaires	___ A ___
3. Graduate School acceptance rates	___ C ___
4. Student graduation/retention rates	___ A ___
5. Exit Interviews	___ A ___
6. Student satisfaction surveys	___ A ___
7. Student Course evaluations	___ A ___
8. Focus group discussions	___ A ___
9. Alumni surveys	___ A ___
10. Tracking of alumni honors, awards, and achievements at local, state, and national levels	___ C ___
11. Identification and assessment of at-risk students	___ C ___
12. Analysis of student grade distributions	___ C ___
13. Examination of information contained in department's own database	___ C ___
14. Other evaluations of course instruction (e.g., chair or peer review)	___ A ___
15. Curriculum/syllabus analysis (e.g., analysis of transfer student preparation)	___ C ___
16. Community perception of program effectiveness	___ C ___
17. Community service/volunteerism participation	___ C ___
18. Other: _____	_____
_____	_____
_____	_____

Part III: Other Information

1. Has this program used any of the direct or indirect methods listed above to improve student learning, operational effectiveness, student services, and/or general operations?

Yes No

If Yes, please briefly note 1 - 3 examples

Example 1: Based on input from the food industry, there have been a number of changes made to our capstone course (Advanced Food Technology, FSC 536) including engaging industry representatives to teach sections of the course, changes to the how the research and development components are taught, and developing product specifications to accompany new products.

Example 2: In order to provide further examples of the applications of concepts taught in Food Chemistry & Food Analysis courses, assignments to watch and answer a questionnaire about the PBS Nova programs "Absolute Zero" and "Cancer Warrior" have been included.

Example 3: In general, classes have been updated to include new technology both regarding the methods of teaching and the material being taught.

2. What resources (i.e., training, personnel, technology, etc.) does this program need to develop and/or implement better methods for assessing and improving student outcomes and program effectiveness?

We recently conducted our first online survey of recent graduates. Based on this experience we makes modifications to the scope and content of future surveys that will be conducted every two years.

3. Please list any additional comments or concerns.

For question 5 on page 1 we struck-through the word "fully" because while we have an assessment plan, but we do not feel that it is perfect and thus reserve the right to modify our plan in the future, and thus our current plan is likely not "fully articulated".

Completed by: Dr. William L. Boatright

Date: 10-22-09



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Mission Statement

The Mission of the Department of Animal and Food Sciences is to:

- Develop, Improve, and Promote Sustainable Animal Production Systems
- Improve the Health and Well-Being of Animals in Food and Non-Food Production Systems
- Enhance the Quality, Utilization and Safety of Food Products
- Facilitate Life-Long Learning through:
 - Creative Research and Discovery
 - Challenging and Encompassing Education
 - Effective Technology Transfer

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Last Updated: Wednesday, October 28, 2009

University of Kentucky Program Outcomes and Assessments

Program outcomes for Food Science majors have been evaluated on an on-going basis. These program outcomes are periodically reviewed and revised by the food science faculty in response to input from stakeholders and educators.

2009 Program Outcomes for Food Science Majors

Graduates of the University of Kentucky undergraduate Food Science program will be able to:

1. apply a thorough academic background in food science and related disciplines toward successful entry level employment within the food industry, or for transition to a food science graduate program
2. demonstrate relevant laboratory skills and a basic understanding of underlying principles of laboratory techniques.
3. apply a fundamental knowledge of food chemistry, microbiology, nutrition, processing, analyses and engineering toward food related research and product development.
4. apply quality assurance procedures in food processing such as Hazard Analysis and Critical Control Points (HACCP) toward the production of safe and nutritious foods.
5. be able to find, understand and adhere to federal laws and regulations in the manufacturing and sale of foods and food products.
6. demonstrate and ability to manage numerous tasks and assignments in an ethical and professional manner in order to efficiently meet deadline challenges.
7. demonstrate communication, computer and information technology skills necessary to obtain, analyze, interpret and convey scientific information to individuals or groups at various educational levels.

University of Kentucky Tools used to assess program outcomes

A variety of techniques have been put into place to assess program outcomes, including:

Food Science Course Evaluations. Anonymous evaluations of each Food Science course are conducted at the end of each semester using a uniform teaching evaluation form developed by the University Senate Council. Results can be found online at <http://www.uky.edu/IRPE/faculty/tce.html>.

Student performance in internships. In addition to student presentations about their internship experiences, telephone interviews are held by responsible faculty with each employer at completion of internship.

Regular meetings with Food Industry. Food companies are engaged to teach part of our capstone course and provide input on their expectations of our graduates.

Student performance in capstone course. The capstone course also include program assessment as an informal portion of the course.

Regular meeting with current food science majors. The director of undergraduate studies and/or faculty discuss with all food science majors their opinions on course work, curriculum content, teaching proficiency and any other issues/concerns about the food science program. Students are encouraged to talk openly and ask questions.

Survey of recent graduates. Using guidelines in the *Handbook of Curriculum Assessment* (Wolf and others, 2006) we conduct an online survey of graduates that completed a B.S. in Food Science from the University of Kentucky in the last two years. Using the Key Survey web page (<http://www.keysurvey.com>) graduates are contacted by e-mail and provided access to complete the online survey. Sixty-four percent of those invited participated in 2009. A similar online survey will be conducted about every two years in the future.

University of Kentucky Food Science Course outcomes and assessments

For each required food science course:

A. Specific learning outcomes including how the course addresses the primary Food Science core competencies.

B. Tools used to assess learning outcomes (portfolios, oral presentations, papers, reports, projects, academic journals, quizzes and exams, etc.), indicating level of assessment Bloom's taxonomy

The following grids provide lists of specific course outcomes and assessment techniques. Bloom's taxonomy was used to indicate the specific levels of assessment. Included in this documentation are learning outcomes with assessment techniques for the following food science courses (required for IFT accreditation). NFS 311 Nutritional Biochemistry is included because it can be taken in place of Biochemistry (BCH 401G). Also included are FSC 395 (Special Problems in Food Science) and FSC 399 (Experiential Learning in Food Science), though not required by IFT, are also included because we feel both courses are integrally pertinent to the IFT requirements.

FSC 107 - Introduction to Food Science
FCS 306 - Introduction to Food Processing
NFC 311 - Nutritional Biochemistry
AEN 340 - Principles of Food Engineering
FSC 434G - Food Chemistry
FSC 530 - Food Microbiology
FSC 535 - Food Analysis
FSC 536 - Advanced Food technology (Capstone course)

LEARNING OUTCOMES – FSC 107: INTRODUCTION TO FOOD SCIENCE

Course Outcome	Bloom Level	Assessment
Understand principles of chemical and microbial spoilage of foods Have a good understanding of methods of food preservation: <ul style="list-style-type: none"> • Physical methods • Chemical preservatives • Fermentations 	1-3	In class discussion Exams
Understand factors affecting food safety and their control. Awareness of risks associated with specific microorganisms, toxins and hazardous chemicals.	1-3	In class discussion Exams
Understand food composition and its contribution to human nutritional needs	1-3	In class discussion Exams
Basic understanding of dietary trends and diet related disease.	1-3	In class discussion Exams
Awareness of current food science problems	1-3	Written assignment and in class presentation and discussion using Powerpoint
Understand units and dimensions and be able to apply them to algebraic calculations such as mass and energy calculations		Students perform calculations in homework assignment, lab reports and exams
Develop a working knowledge of psychometrics, water activity, and equilibrium moisture.		Evaluate students' comprehension via homework assignments, laboratory report and exams
Develop a working knowledge of spreadsheet operations.		Evaluate via homework.
Understand fluid flow engineering concepts and develop an ability to estimate energy requirements.		Evaluate students' comprehension via homework assignments and exams

LEARNING OUTCOMES – FSC 306: INTRODUCTION TO FOOD PROCESSING

Course Outcome	Bloom Level	Assessment
Understanding methods and systems of heat transfer in food processing.	2-4	Homework problems, class discussion, laboratory experiments and reports, quizzes, exams
Concentration and water reduction systems in food processing	2-4	Homework problems, class discussion, laboratory experiments and reports, quizzes, exams
Use of low temperature systems in food storage	3	Class discussion, laboratory experiments and reports, quizzes, exams
Use of emulsions, gels, foams and smoking in processed foods	2-4	Class discussion, laboratory experiments and reports, quizzes, exams
Applications of new technologies in food processing.	2-3	Class discussion, laboratory experiments and reports, quizzes, exams
Food waste systems	2-4	Exams; class discussions and questions
HACCP	3-4	Exams; class discussions and questions Written HACCP plan
Food laws and regulations	1-3	Exams; class discussions and questions
Practical knowledge of current food processing applications	1-3	Exams; class discussions and questions Field trips and reports.

LEARNING OUTCOMES – NFS 311: NUTRITIONAL BIOCHEMISTRY

Course Outcome	Bloom Level	Assessment
Provide the biochemical background necessary to understand nutrition	5-6	In class discussion; Quizzes; Exams
Understand the physiochemical properties of nutrients and other essential biochemicals and their role in physiological and metabolic processes	5-6	In class discussion; Quizzes; Exams
Discuss and understand cases of health-related problems to illustrate biochemical aspects of nutrition	5-6	In class discussion; Quizzes; Exams

LEARNING OUTCOMES – AEN 340: PRINCIPLES OF FOOD ENGINEERING

Course Outcome	Bloom Level	Assessment
Understand energy and heat transfer operations typically used in food processing and be able to calculate energy flow.		Evaluate students' comprehension via homework assignments, class discussions and exams
Develop techniques for performing mass and energy balances on different food processes.		Evaluate students' comprehension via homework assignments and exams.
Understand the principles of unit operations such as food freezing, evaporation, and dehydration as well as refrigeration and be able estimate resource requirements.		Evaluate students' comprehension via homework assignments and exams
Appreciate the variability associate with physical properties of biological materials and simplifying assumptions on the results of engineering calculations.		Evaluate students' comprehension via homework assignments, class discussions and exams.
Appreciate new technical aspects of new food processing operations of importance to the food industry		Evaluate students' comprehension via homework assignments, class discussions and exams

LEARNING OUTCOMES - FSC 395: SPECIAL PROBLEMS IN ANIMAL SCIENCE/FOOD SCIENCE

Course Outcome	Bloom Level	Assessment
Have a good understanding of the principles that influence microbial growth, survival, and death in foods.	3-6	*Evaluating written learning assignments *Observing student during independent studies
<ul style="list-style-type: none"> Have sufficient knowledge of food chemistry of degradation of food proteins, lipids and carbohydrates. Use this knowledge to understand what can be done to prevent these chemical reactions in muscle foods 	3-6	*Evaluating written learning assignments *Observing student during independent studies
Identify principles of food science affecting processing of foods	3	Students are assessed about principles of food science via homework assignments, lab reports, plant tour reports and term paper
Understand how the source and variability of raw food material can affect the stringency of food processing conditions and the microbiological quality of final products.	3-6	*Evaluating written learning assignments *Observing student during independent studies
Have a good understanding of biochemical reactions in foods due to microbial growth by foodborne spoilage and pathogenic bacteria. The food groups of interest are: <ul style="list-style-type: none"> Meat, poultry, and seafood Milk and dairy products Fruits, vegetables, and grains 	3-6	*Evaluating written learning assignments *Observing student during independent studies

LEARNING OUTCOMES - FSC 399: EXPERIMENTAL LEARNING IN ANIMAL SCIENCE/FOOD SCIENCE

Course Outcome	Bloom Level	Assessment
Make contacts with perspective companies to set up internship	3-4	Help students find companies that are interested in having internships Discuss with students what companies might be most appropriate for an internship
Understand how to write good resumes and cover letters	3-4	Instruct students about writing resumes and cover letters Evaluate students prepared resumes and cover letters
Understand how to tailor each cover letter and resumes for each corporation.	3-4	Teach students how to individualize resumes and cover letters. Evaluate cover letters and resumes before they are sent out.
Understand the importance of a corporate interview.	3-4	Discuss how to dress and prepare for an interview. Evaluate what student did during the interview
Understand the importance of keeping a journal during an internship	3-4	Teach methods that are used in good journal keeping. Evaluate student journals several times during the internship
Understanding what is expected of students that are going to do an internship	3-4	Teach student to expect to work at levels not generally expected of students Evaluate student journal and conduct through email.
Reporting internship outcome	3-4	Work with student to develop a professional presentation about their internship Evaluate student presentation.
Giving the presentation	3-4	teach techniques for making a professional presentation Evaluate student presentation and ability to answer questions about their internship.
Discuss industrial feed back	3-4	Discuss with students the evaluations given by intern sponsors. Evaluate students response to sponsors evaluation

LEARNING OUTCOMES - FSC 434G: FOOD CHEMISTRY

Course Outcome	Bloom Level	Assessment
Familiarize with the main chemical components in food	6	The instructor will give a periodical review of covered materials to evaluate students' learning; Quizzes and exams
Recognize the chemical structures of common simple and complex carbohydrates, lipids, proteins, and amino acids	5	Quizzes and exams
Understand the chemical reactions of food components	6	Lab exercises through which the instructor will learn whether the students have a good concept and application skill
Be able to interpret lab results	6	Lab reports will be graded; quizzes and exams; student feedback in "Q&A" help sessions
Be able to utilize chemical reactions to create new colors and flavors	4	Lab exercises; lab reports
Be able to describe the functionality of food components, such as proteins and lipids	5	Quizzes and exams
Familiarize with the common natural and synthetic antioxidants	6	Quizzes and exams
Recognize the chemical structure and general properties of vitamins and minerals	5	Quizzes and exams
Know how to preserve food quality by controlling chemical reactions	6	Exams (with applied questions); Internet will be used to obtain some "answers"

LEARNING OUTCOMES - FSC 434G: FOOD CHEMISTRY (CONTINUED)

Course Outcome	Bloom Level	Assessment
Be able to describe the main constituents and chemical properties of commodity foods (egg, dairy, muscle foods, plant foods, and formulated foods)	6	Quizzes and exams
Be able to suggest simple methods to detect or analyze food additives	4-6	Exams (with applied questions)
Be aware of current hot topics related to food chemistry	4	The instructor will provide guidance and sometimes hands out research papers on various chemistry-related current issues or topics. Assessment is done through class/group discussion
Be aware of current hot topics related to food chemistry	4	The instructor will provide guidance and sometimes hands out research papers on various chemistry-related current issues or topics. Assessment is done through class/group discussion
Be able to assess the risks and benefits of the use of chemicals in food processing	6	Quizzes
Answer questions on exams that require synthesis of knowledge from several areas of course material	5	Exams with comprehensive questions (1 to 2).
Be able to apply what is learned in the class to industry internship	5	This is critically important, but it will not possibly be assessed in class. Nonetheless, the instructor will interview the students and obtain feedback for needed changes when the course is taught again next time

LEARNING OUTCOMES - FSC 530: FOOD MICROBIOLOGY

Course Outcome	Bloom Level	Assessment
<p>By the end of this course, each student will be able to describe what factors influence microbial growth in foods?</p> <ul style="list-style-type: none"> • Intrinsic Factors • Extrinsic Factors • Barrier or Hurdles Concept 	4-6	<p>Closed Book Tests Writing Assignments Class Discussion</p>
<p>Understand the use of microorganisms to ferment foods.</p> <ul style="list-style-type: none"> • Starter Cultures • Fermentation In Milk • Fermented Foods 	4-6	<p>Closed Book Tests Writing Assignments Class Discussion</p>
<p>What species, genera, and microbial groups are important to the food industry?</p> <ul style="list-style-type: none"> • Genera Of Bacteria Common In Foods <ul style="list-style-type: none"> Gram Positive Cocci <ul style="list-style-type: none"> Regular, Non-sporing Gram Positive Cocci Endospore-forming Gram Positive Rods and Cocci Irregular, Nonsporing Gram Positive Rods The Mycobacteria Nocardioforms Gram Negative Aerobic Rods and Cocci Gram Negative Facultatively Anaerobic Rods Aerobic\Microaerophilic, Motile, Helical/Vibrioid Gram Negative Bacteria The Rickettsias and Chlamydias • Grouping Of Bacteria According To Common Characteristics Or Physiological Reactions • Molds • Mycotoxins • Yeasts • Bacteriophage • Parasites Causing Foodborne Illnesses • Fish And Seafood Related Illness 	4-6	<p>Closed Book Tests Writing Assignments Class Discussion</p>

LEARNING OUTCOMES - FSC 530: FOOD MICROBIOLOGY (CONTINUED)

Course Outcome	Bloom Level	Assessment
<p>What procedures and techniques can be used for controlling microbial contamination of foods and food contact equipment?</p> <ul style="list-style-type: none"> • Sanitary Regulations • Management and Sanitation • Microorganisms and Their Relationship to Sanitation • Food Contamination Sources 	4-6	<p>Closed Book Tests Writing Assignments Class Discussion</p>
<p>What methods and principles can be used for controlling microbial contamination and for preventing subsequent growth of undesirable microorganisms in raw and processed foods?</p> <ul style="list-style-type: none"> • Contamination Of Foods (Accidental And Intentional) • General Principles Underlying Spoilage • Microbial Defects In Specific Foods • General Principles Of Food Preservation • Preservation By The Use Of High Temperatures • Preservation By The Use Of Low Temperatures • Preservation By The Use Drying • Preservation By Food Additives • Preservation By Radiation • Enumeration • Procedures For Ensuring Food Quality 	4-6	<p>Closed Book Tests Writing Assignments Class Discussion</p>
<p>What role does the food industry play in Agrosecurity?</p> <ul style="list-style-type: none"> • issues dealing with food production, processing, storage, and distribution; • threats against the agriculture sector and rapid response to such threats; • border surveillance and protection to prevent introduction of plant and animal pests and diseases; and • food safety activities concerning meat, poultry, and egg inspection, laboratory support, research, education and outbreaks of foodborne illness. 	4-6	<p>Closed Book Tests Writing Assignments Class Discussion</p>

LEARNING OUTCOMES - FSC 530: FOOD MICROBIOLOGY LABORATORY

Course Outcome	Bloom Level	Assessment
<p>What procedures and techniques can be used for the isolation and enumeration of microorganisms in foods?</p> <ul style="list-style-type: none"> • Culture Media • Sampling, Sample Handling And • Principles of Quantitation • Methods For The Isolation Of Microorganisms • Plating Techniques • Indicated Number and Most • Probable Number Technique • <i>Escherichia Coli</i> Testing for Process • Control Verification in Cattle, • Swine, And Poultry • Slaughter Establishments • Methods and Procedures for The Enumeration of Selected Microbial Groups 	4-6	<p>Observation Of Techniques During Class</p> <p>Laboratory Reports</p> <p>Laboratory Quizzes</p> <p>Class Discussion</p> <p>Cumulative</p> <p>Laboratory Practical</p>
<p>Identification and Characterization of microorganisms in foods.</p> <ul style="list-style-type: none"> • Gram-positive Bacteria • Sporeforming Bacteria • Gram-negative Bacteria • Fungi –Molds and Yeasts • <i>S.aureus</i> PCR 	4-6	<p>Observation Of Techniques During Class</p> <p>Laboratory Reports</p> <p>Laboratory Quizzes</p> <p>Class Discussion</p> <p>Cumulative</p> <p>Laboratory Practical</p> <p>Unknown Project and written report</p>
<p>Food Quality Analysis</p> <ul style="list-style-type: none"> • Preservatives • Spoilage • Membrane Filter Techniques • Sanitary Condition of Food • Contact Equipment • Handwashing 	4-6	<p>Observation Of Techniques During Class</p> <p>Laboratory Reports</p> <p>Laboratory Quizzes</p> <p>Class Discussion</p> <p>Cumulative</p> <p>Laboratory Practical</p>

LEARNING OUTCOMES – FSC 535: FOOD ANALYSIS

Course Outcome	Bloom Level	Assessment
Communicating laboratory results in writing.	2, 3, 4, 5, 6	Laboratory reports are graded according to a well-defined criteria provided to the student in a laboratory guidelines and a sample lab report
Understanding basic chemistry necessary to perform and understand laboratory exercises	1,2,3,4	Evaluated by classroom discussion, weekly quizzes, and periodic examination.
Understanding principles, application and limitations behind the most widely used chemical analysis of food components.	1,2,3,4	Evaluated by classroom discussion, weekly quizzes, periodic examination and graded laboratory reports.
Understanding principles behind the most widely used spectrophotometric methods and the application of these methods in analyzing food components.	1,2,3,4	Evaluated by classroom discussion, weekly quizzes, periodic examination and graded laboratory reports.
Understanding principles, application and limitations of chromatographic separations.	1,2,3,4	Evaluated by classroom and laboratory discussion, weekly quizzes, periodic examination and graded laboratory reports
Understanding how the chemical and physical properties of food components affect their interaction with other food components and how these properties affect their extraction and analysis.	1,2,3,4	Evaluated by classroom and laboratory discussion, weekly quizzes, periodic examination and graded laboratory reports.
Understanding principles, application and limitations of using human for sensory analysis of foods and their components.	1,2,3,4	Evaluated by classroom and laboratory discussion, weekly quizzes, periodic examination and graded laboratory reports.

LEARNING OUTCOMES – FSC 535: FOOD ANALYSIS

Course Outcome	Bloom Level	Assessment
Awareness of government regulations related to food composition.	1,2	Examinations and evaluation as a component of student oral presentations.
Provide and understanding of what is required to prepare a laboratory protocol that others can effectively perform.	1,2,3,4,5,6	Evaluated by classroom and laboratory discussion and graded laboratory reports.
Understand how storage and sampling techniques can affect the degradation of food components.	1,2,3,5	Evaluated by classroom and laboratory discussion, weekly quizzes, periodic examination and graded laboratory reports.
Being able to find published information from a variety of printed and electronic sources	1,3,5,6	Evaluated by classroom and laboratory discussion and graded laboratory reports.
Evaluation of analytical methods found in literature.	1,2,3,4,6	Evaluated by classroom and laboratory discussion and graded laboratory reports.
Work with others in the laboratory	3	Evaluated by classroom and laboratory discussion and graded laboratory reports
Provide the student with experience in preparing and delivering an oral presentation.	1,2,5,6	The professor and other students evaluate each presentation for six predefined and weighted criteria.
Apply critical thinking skills to analytical problems	1,2,3,4,5,6	Evaluated by classroom and laboratory discussion, graded laboratory reports and individual projects.
Familiarize the student with instrumentation and related procedures commonly used to analyze food components.	1,2,3,4,5,	Evaluated by classroom and laboratory discussion, weekly quizzes, periodic examination and graded laboratory reports.

LEARNING OUTCOMES – FSC 536: ADVANCED FOOD TECHNOLOGY

Course Outcome	Bloom Level	Assessment
Researching consumer trends, find resource materials	5-6	Instruct where to find consumer trends in the library and through web searches Evaluate written proposal, weekly report, and class discussion
Propose new product and justify the development of product, based on consumer trends	5-6	Instruct students about new product concept development Evaluate proposal for critical thinking skills to determine if proposed class project meets course goals.
Understand how marketing interacts with R&D personnel	4-5	Industrial instructions by a marketing firm Evaluate students understanding through exams and written reports.
Understand the importance of developing good project proposals & signoff procedures	5-6	Instruct on how to limit moving targets in the R&D climate Evaluate proposal for critical thinking skills to determine if proposal defines projects goals and attributes
Recognize the difference between consumer perceptions and actual behavior	5-6	Teach methods that track consumer behavior and perceptions Evaluate student understanding through the use of exams and written reports
Follow GNATT chart during product development project	5-6	Teach how industry uses GNATT chart to keep project on schedule Evaluate students use of course GNATT chart to keep their projects on schedule
Standardizing product formulations	5-6	Use calculations and computer software to standardize product formula for fat, protein and carbohydrate plus nutrients Evaluate student weekly reports & products to determine degree of standardization.

LEARNING OUTCOMES – FSC 536: ADVANCED FOOD TECHNOLOGY (CONTINUED)

Course Outcome	Bloom Level	Assessment
Understand shelf life development	4-5	Teach about food additives that prolong shelf life Evaluate student understanding through the use of exams and written reports
Building shelf life into new product prepared by class teams	5-6	Teach about food additives that prolong shelf life Evaluate student weekly reports & products to determine shelf life of team products
Understanding how to pick the correct additives from a class of additives	4-5	Teach about the individual characteristics of food additives and their effect in different food systems Evaluate weekly reports on formulation development and the new products being brought to class
Understand how to get ingredients and additives for new food formulations	5-6	Teach student how to contact suppliers to get samples that they use in their new food products. Evaluate students effectiveness in getting the correct samples to test in their new food products by evaluating products and activities to develop new products
Understanding the importance of standardizing flavor, odor and texture parameters	5-6	Give students and actual industrial experience of being in a Focus Group Evaluate students responses to being in a industrial Focus Group
Understand the use of Focus groups to develop team products	5-6	Teach the use of Focus groups to help determine correct level of additives. Evaluate student reports on the outcome of Focus group testing for additives being used in their products.
Understand how to keep good formulary records	5-6	Teach about securing specification sheets and how to maintain laboratory logs Evaluate laboratory logs and specification sheets on ingredients

LEARNING OUTCOMES – FSC 536: ADVANCED FOOD TECHNOLOGY (CONTINUED)

Course Outcome	Bloom Level	Assessment
Understand and account for desirable and undesirable change in new product development	5-6	Teach methods for analyzing changes occurring in the manufacture of new food products Evaluate reports for critical thinking skills to determine if proposed changes in new products meets formulary goals.
Understand how to develop score cards and run technical and lay sensory panels	5-6	Teach methods for development and use of sensory score cards. Tech techniques for analyzing sensory data. Evaluate student understanding through exams, lab reports and their interaction with industrial R&D personnel
Understand how to develop label information	5-6	Refer student to analytical methods and teach how to calculate label information from specification sheets and the use of soft ware to track total nutrients. Evaluate student reports and critical think for determining the contents of their new food products
Understanding the development of products for niche markets	5-6	Industrial lectures on techniques for realizing when to develop products for niche markets Evaluate student understanding through exams, lab reports and their interaction with industrial R&D personnel
Understand the problems encountered during product scale up from bench, to pilot plant, to manufacturing.	5-6	Industrial lecture on scale up problems encountered in various types of products and equipment lines Evaluate students understand through exams and written reports
Understanding how new products are evaluated using sensory tests and compared to other products using sensory tests,	5-6	Teach what type of sensory test is used to test various parameters. Teach appropriate data analysis and use of software Evaluate weekly reports and critical thing skills
Understanding how and what to do to develop a product label	5-6	Teach methods and software that are often used in the development of product labels Evaluate Written reports and labels of teams for new products

VII. Coverage of Food Science Core Competencies (continued)

FOOD SCIENCE OPTION 1											
Food Chemistry and Analysis											
	FSC 107 COURSE 1	FSC 304 COURSE 2	FSC 306 COURSE 3	NFS 311 COURSE 4	AEN 340 COURSE 5	FSC 434 COURSE 6	FSC 530 COURSE 7	FSC 535 COURSE 8	FSC 536 COURSE 9	FS 538 COURSE 10	FS 540 COURSE 11
understand the chemistry underlying the properties and reactions of various food components	O	X	O	O		X	O	X	O	X	
have sufficient knowledge of food chemistry to control reactions in foods		O	X	O		X	O	X	X	O	
understand the major chemical reactions that limit shelf life of foods	O	X	O			X	X	X	X	O	O
be able to use the laboratory techniques common to basic and applied food chemistry		O	O			X		X	O		
understand the principles behind analytical techniques associated with food		O	O			O		X	O		
be able to select the appropriate analytical technique when presented with a practical problem		O	O			O		X	O		
demonstrate practical proficiency in food analysis laboratory						O		X	O		

x - cover in detail

o - cover to some extent

FOOD SCIENCE OPTION 1											
Food Safety and Microbiology											
	FSC 107 COURSE 1	FSC 304 COURSE 2	FSC 306 COURSE 3	NFS 311 COURSE 4	AEN 340 COURSE 5	FSC 434 COURSE 6	FSC 530 COURSE 7	FSC 535 COURSE 8	FSC 536 COURSE 9	FS 538 COURSE 10	FS 540 COURSE 11
be able to identify the important pathogens and spoilage microorganisms in foods and the conditions under which they will grow	O	O	O	O			X		O	X	O
be able to identify the conditions under which the important pathogens are commonly inactivated, killed or made harmless in foods	O	O	X			O	X		O	X	X
be able to utilize laboratory techniques to identify microorganisms in foods		O					X			X	
understand the principles involving food preservation via fermentation processes	O	O	O			O	X		O	X	O
understand the role and significance of microbial inactivation, adaptation and environmental factors (i.e., Aw, pH, temperature) on growth and response of microorganisms in various environments	O	O	O			X	X	O	O	X	O
be able to identify the conditions, including sanitation practices, under which the important pathogens and spoilage microorganisms are commonly inactivated, killed or made harmless in foods	O		X			O	X		O	X	X

x - cover in detail

o - cover to some extent

Assessment of Food Science program

A variety of techniques have been put into place to assess program outcomes, including:

1. **Food Science Course Evaluations.** Anonymous evaluations of each Food Science course are conducted at the end of each semester using a uniform teaching evaluation form developed by the University Senate Council. Results can be found online at <http://www.uky.edu/IRPE/faculty/tce.html>.
2. **Student performance in internships.** In addition to student presentations about their internship experiences, telephone interviews are held by responsible faculty with each employer at completion of internship.
3. **Regular meetings with Food Industry.** Food companies are engaged to teach part of our capstone course and provide input on their expectations of our graduates.
4. **Student performance in capstone course.** The capstone course also include program assessment as an informal portion of the course.
5. **Survey of recent graduates.** Using guidelines in the *Handbook of Curriculum Assessment* (Wolf and others, 2006) we conduct an online survey of graduates that completed a B.S. in Food Science from the University of Kentucky in the last two years. Using the Key Survey web page (<http://www.keysurvey.com>) graduates are contacted by e-mail and provided access to complete the online survey. Sixty-four percent of those invited participated in 2009.
6. **Regular meeting with current food science majors.** The director of undergraduate studies and/or faculty discuss with all food science majors their opinions on course work, curriculum content, teaching proficiency and any other issues/concerns about the food science program. Students are encouraged to talk openly and ask questions.

Brief summary of assessment results to date

Item 1. Food Science Course Evaluations. Food Science course evaluations performed by our students from Fall 2005-Spring 2009 have generally been in the top 15 percentile, however in recent years these evaluations have shown a trend toward scores in the top 5 percentile.

**Mean of all Food Science Course Evaluations by Semester
Fall 2005-Spring 2009 (On a Four Point Scale)**

Semester	No. of Students	Quality of Teaching	Quality of the Course
Fall 2005	26	3.5	3.5
Spring 2006	33	3.5	3.6
Fall 2006	29	3.6	3.5
Spring 2007	46	3.4	3.5
Fall 2007	24	3.9	3.9
Spring 2008	37	3.6	3.8
Fall 2008	25	3.8	3.9
Spring 2009	30	3.7	3.8

Item 2. Student performance in internships (FSC 399)

Learning Outcomes	Assessment Methods	Actual results	Use of results
<p>Completion of a Internship (FSC 399). This course set up a contract between the University and the student while in an internship. Internships provide an understanding of job types in the food industry.</p> <p>At the end of the course students should be able to: (a) understand corporate administration and a management style, (b) understand importance behind the job function, (c) understand importance of record keeping, (d) understand why courses in food science are important to job function.</p>	<ol style="list-style-type: none"> 1. Monthly progress reports 2. Daily journal entries 3. Oral presentation at end of internship. 4. Receive oral feed back from industrial partners 	<p>Students who complete an internship receive a P or a passing grade. If they are fired they receive an F.</p>	<p>Keep contact with industrial partners.</p> <p>Invite industrial partners to student presentation.</p> <p>Select industrial partners that provide best internships</p>

Listed are companies that provided paid internships for students for the summers of 2009, 2008, and 2007. All student were required to keep a journal. All students were required to check in with their advisor on a monthly basis by email. All journals were checked at the beginning of Fall semester (after internship was completed) and a presentation about what they learned was prepared from the journal material and the presentation was given during the fall semester. All presentation slides were discussed with the advisor before the presentation was scheduled. Student presentation were announced and attended by other faculty and students. All student were given 3 credit hours for their summer internships. All students were given a Passing grade (pass/fail grading). Lowest paid internship was 12.00/hr and the highest was \$17.00/hr. Jobs ranged from QA, R&D, manufacturing, to relief worker.

<u>Internships</u>	<u>Students</u>			<u>Journal</u>	<u>Seminar presented</u>
	2009	2008	2007		
Winchester farms Dairy	1	2	1	All	All
Martek	0	1	0	All	All
Brown Forman	0	1	1	All	All
White Castle	1	2	1	All	All
KFC	0	0	1	All	All
D. D. Williamson	2	0	1	All	All
Purnell Sausage	1	0	1	All	All
Procter & Gamble	1	0	0	All	All
Nestle	1	2	2	All	All
Continental Mills	0	0	1	All	All
Hunts	0	0	1	All	All
Sara Lee	2	1	1	All	All
FB3	0	0	1	All	All
Wild Flavors	0	1	1	All	All
Bluegrass Dairies	0	1	1	All	All
Dudley's	1	0	0	All	All
Magee's Bakery	1	0	0	All	All
Old Chicago	1	0	0	All	All
Thomas Penway	1	0	0	All	All
Total	13	11	14		

Item 3. Meetings with the Food industry

Students at University of Kentucky have greater contact with industry than most students at other universities. First of all, we have more Kentucky, Ohio, and Indiana based corporations near this University than do most universities. Thus, students receive one-third of the lecture material in FSC 536 from industry. Student travel every Thursday to an R&D center (12 visit during the semester) where they are given a presentation that last from 60 to 90 minutes and then a tour that usually last at least 60 minutes. In FSC 306 and FSC 304 all students are given 5 industrial interactions, in each class. In FSC 306 the student are required to write an extended paragraph describing the most important thing that they learned during the industrial meeting. All Food Science students are invited to monthly meeting held by the Blue grass section of the Institute of Food Technologist. During the October 2009 meeting 16 students attend the Suppliers Night meeting. The Food Science club arranged 3 additional tours at food industries in 2009. Thus, in 2009 there will be a total of 25 industrial interactions and 8 IFT sectional meeting interactions.

Item 4. Student Performance in Capstone Course (FSC 536)

Advanced Food Technology (FSC 536) is a major tool used to evaluate and strengthen our Food Science program outcomes. This is food product development course which includes all aspects of all food science courses taken. Seniors work in teams to develop a new food product. Focus is placed on learning the R&D process rather than being creative. All core areas, including mathematics, physics, microbiology, chemistry, food engineering, food processing, sensory, and statistics are utilized in the development of the product. One third of the lecture material is taught by industrial R&D people. These outside industrial lectures are arranged so that they follow the R&D process from concept development to roll out. Students travel to 12 different R&D centers to learn the most creative and up to date techniques for doing R&D under various situations. No two R&D center produce similar products. Each industrial lecture lasts from 90 to 120 min. Two thirds of the lecture material focuses on background information surrounding the R&D process, including consumer demographics and perceptions about their foods, food additives, development of clean label formulations, packaging, Specifications, COA, HACCP, and consumer archetypes. Students interact with there instructor one day per week to solve their R&D problems. Students follow a GANTT chart in accomplishing their R&D tasks. Students are evaluated on their weekly written progress reports, exams, industrial participation, and their written and oral project presentations. The capstone class provides an accurate picture of how successful industrial R&D is conducted.

Learning Outcomes	Assessment Methods	Actual results	Use of results
<p>Completion of a Capstone course (FSC 536) in the senior year. This course is a food Product and development course, where all aspects of previously taken food science courses are applied.</p> <p>At the end of the course students</p>	<ol style="list-style-type: none"> 1. weekly written progress reports 2. exams 3. industrial participation 4. written and oral project presentations 5. College level teaching evaluation 6. Course level teaching 	<p>Most students (>90%) perform and a satisfactory (C) level or better. Course grades average: A (Excellent) 25 to 40%) B (Good) ~ 50% C (Satisfactory) 10 to 25%</p>	<p>Engagement of industrial teachers.</p> <p>Industrial lectures follows development process</p> <p>Student teams follow GANTT chart</p> <p>Students required to write COA's and Spec, sheets.</p>

<p>should be able to: (a) understand the development process , (b) understand why timing is important, (c) why team management is necessary, (d) understand the various stages of development</p>	<p>evaluation.</p>		<p>Lectures are kept current</p>
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Changes made to FSC 536 during recent years and resulting from our assessment process include:

- a. **Industry was engaged to teach** part of the course to discussed issues that were not in text books. Industry now teaches 1/3 of the lecture material.
- b. **The industrial lectures follows the R&D process.** Thus, certain companies are used to discuss how new concepts are derived, how new concepts are tested, writing of project proposals, who sign off on a new project, the R&D process, testing of formulated products, consumer tests, operational tests, market tests, and strategies of roll out.
- c. **Students teams follow a GANTT chart** in managing their development of a new product, which encompasses most of the items on an industrial GANTT chart. The use of a GANTT was added to the course to make the development process seem real, and helped keep the student projects on task.
- d. **Industry wanted students** to write COA's and internal and external specification sheets.
- e. **Lecture material is updated yearly** to follow new consumer trends and to teach how to access this information. P&G is one of the companies that gives one of the lectures to these students. They are the only company to does formal archetype research. Several years ago, outgoing students asked (class evaluation forms) to have more information given to them on conducting archetype research. Thus, one lecture was added to expand the information on this topic. In the past two years Kentucky Fried Chicken (does one lecture for the class) adopted a new method called SQS (Sensory Quality System) where they can reverse engineer a product or check a supplier ingredient within a few hours. Students felt that this technique was much more important that focus group work, so

information was scaled back on focus groups and more information was developed for how setup a SQS within an industrial setting.

Future changes: It is expected the capstone class will continue to evolve as consumer perception shift, and as new techniques are utilized by the industry. However, we believe that this course is the best R&D class taught in the United States today.

Past student assessment: Students who have worked in industry for several years state that this course gave them the best understanding of all the jobs that are available in the food industry, gave them the direction that they need to pick the kind of job that they wanted to do in the food industry, and motivated them to put in place procedures that streamlined the way new products were looked at within the company that they work for.

Item 5. Survey of recent graduates. Based on the University of Kentucky Online Graduate survey (completed in July 2009) we found that all but one of our recent graduates had found a job in the Food Science field. The one former student still interviewing had graduated only a couple of months prior to the interview. The level of satisfaction with the Food Science program for the areas surveyed was generally high. While the specific areas of food chemistry, analysis, microbiology and engineering were reported to be strong, there were some areas that appear to need improvement. Two students indicated that select items from the IFT Core competences "success skills", needed to be addressed more in-depth. These included: helping students manage their time effectively, working in teams, and developing their leadership/interpersonal skills. Most every 300 level or above food science course already contains components focused on developing these skills in our students. There are a number of opportunities for students to become involved in college or program activities to develop their leadership/interpersonal skills including the Food Science Club, IFT activities and college ambassadorships. Involvement in these programs is encouraged by our faculty, but is not mandatory. The two students that indicated that our program need to be improved by providing activities to manage their time effectively, work in teams, and develop their leadership/interpersonal skills, chose not to participate in any of these programs. Even so, our food science faculty plan to add additional focus on these skills in select classes in coming years. We will continue to use the online survey tool every 2 years to ascertain the effectiveness of our program toward desired learning outcomes, and to learn the placement success of our former students.

Animal & Food Sciences Graduate Program
Assessment

1. Student learning outcomes.

See Attached

2. Method(s) of assessment for measuring student learning outcomes.

We have developed an assessment form (see attached) that will be completed by each member of the graduate supervisory committee.

3. Document that links student learning outcomes to the program curriculum.

See attached.

4. Have you determined an assessment cycle and fully articulated an assessment plan?

The assessment form will be completed by each member of the graduate supervisory committee following the final comprehensive exam that is completed by all students.

Animal & Food Sciences Graduate Program Curriculum

Relating Student Learning Outcomes to the Program Curriculum

- Students will demonstrate a thorough command of knowledge in an area of emphasis offered by the Graduate Faculty in the Department of Animal and Food Sciences

ASC 404g Sheep Science (4)
ASC 408g Swine Science (3)
ASC 410g Equine Sciences (3)
ASC 420g Dairy Cattle Science (3)
ASC 564 Milk Secretion (3)
ASC 601 Mammalian Endocrinology (3)
ASC 602 Micronutrient Metabolism (4)
ASC 630 Advanced Meat Science (4)
ASC 660 Biology Of Reproduction (3)
ASC 664 Advanced Animal Breeding (3)
ASC 680 Laboratory Methods In Nutritional Sciences (4)
ASC 681 Energy Metabolism (2)
ASC 682 Microbial Ecology Of Digestion (4)
ASC 683 Protein Metabolism (2)
ASC 684 Advanced Ruminant Nutrition (3)
ASC 685 Mineral Metabolism (2)
ASC 686 Advanced Nonruminant Nutrition (3)
ASC 687 Vitamin Metabolism (2)
ASC 688 Equine Nutrition (2)
ASC 689 Physiology Of Nutrient Digestion And Absorption (3)

FSC 434G FOOD CHEMISTRY (4)
FSC 530 FOOD MICROBIOLOGY (5)
FSC 535 FOOD ANALYSIS (4)
FSC 536 ADVANCED FOOD TECHNOLOGY (4)
FSC 538 FOOD FERMENTATION AND THERMAL PROCESSING (4)
FSC 540 FOOD SANITATION (3)
FSC 603 INTEGRATED NUTRITIONAL SCIENCES III (2)
FSC 630 ADVANCED MEAT SCIENCE (4)
FSC 636 FOOD PACKAGING (2)
FSC 638 FOOD PROTEINS (3)
FSC 640 FOOD LIPIDS (3)
FSC 642 FOOD PIGMENTS (3)

- Students will demonstrate the ability to apply critical scientific thought in the application of hypothesis formation, and the design and execution of experiments.

ASC 767 Dissertation Residency Credit (2)

ASC/FSC 780 Special Problems in Animal Derived Foods (1-4)

ASC 781 Special Problems in Genetics and Animal Breeding (1-4)

ASC 782 Special Problems in Animal Nutrition (1-4)

ASC 783 Special Problems in Reproductive Physiology (1-4)

ASC/FSC 790 Research in Animal Derived Foods (1-6)

ASC 791 Research in Genetics And Animal Breeding (1-6)

ASC 792 Research in Animal Nutrition (1-6)

- Students will demonstrate competency in the collection, analyses and interpretation of data as it relates to the scholarship of their area of emphasis.

ASC 767 Dissertation Residency Credit (2)

ASC 780 Special Problems in Animal Derived Foods (1-4)

ASC 781 Special Problems in Genetics and Animal Breeding (1-4)

ASC 782 Special Problems in Animal Nutrition (1-4)

ASC 783 Special Problems in Reproductive Physiology (1-4)

ASC 790 Research in Animal Derived Foods (1-6)

ASC 791 Research in Genetics And Animal Breeding (1-6)

ASC 792 Research in Animal Nutrition (1-6)

- Students will be able to effectively communicate scientific findings orally and demonstrate competency in scholarly writing in the form of a master's thesis or a doctoral dissertation.

ASC 771 Animal Science Seminar (1)

ASC 780 Special Problems in Animal Derived Foods (1-4)

ASC 781 Special Problems in Genetics and Animal Breeding (1-4)

ASC 782 Special Problems in Animal Nutrition (1-4)

ASC 783 Special Problems in Reproductive Physiology (1-4)

ASC 790 Research in Animal Derived Foods (1-6)

ASC 791 Research in Genetics And Animal Breeding (1-6)

ASC 792 Research in Animal Nutrition (1-6)

University of Kentucky
Assessment Inventory for General Education and Degree Programs

College: Agriculture

Department: Animal & Food Sciences

General Education/Degree Program: MS/PhD

Undergraduate/Graduate/Professional: Graduate

Part I: Inventory of Statements and Plans

1. Is there a written mission statement or statement of purpose for this program and/or the department or unit within which the program is located?

_____ Yes X No

If Yes, please copy and paste, attach a copy or send a link

2. Have you articulated student learning outcomes which describe what a student should know or be able to do when they have completed this program?

 X Yes _____ No

If Yes, please copy and paste, attach a copy or send a link

3. Have you chosen a method(s) of assessment for measuring student learning outcomes?

 X Yes _____ No

If Yes, please copy and paste, attach a copy or send a link

4. Do you have a document (such as a curriculum map) that links student learning outcomes to the program curriculum?

 X Yes _____ No

If Yes, please copy and paste, attach a copy or send a link

5. Have you determined an assessment cycle and fully articulated an assessment plan?

 X Yes _____ No

If Yes, please copy and paste, attach a copy or send a link

6. Does this program have an accreditation process(es) separate from SACS?

_____ Yes X No

Part II: Assessment of Outcomes

During the past year, has your program used any of the following for assessment of outcomes?

Please indicate:

"A" if currently being used

"B" if not currently being used but interested in using

"C" if not appropriate/applicable

**Note: the following is not an exhaustive list; please feel free to add any other direct or indirect methods of assessment you may use, as necessary.*

Direct methods of assessment:

(Enter A, B, C)

- | | |
|---|-----------|
| 1. Comprehensive exams | ___ A ___ |
| 2. Writing proficiency exams | ___ C ___ |
| 3. National examinations assessing subject matter knowledge (e.g. Major Field Achievement Test) | ___ C ___ |
| 4. Graduate Record Exam General Test (GRE) | ___ C ___ |
| 5. GRE Subject Test | ___ C ___ |
| 6. Certificate examinations | ___ C ___ |
| 7. Licensure examinations | ___ C ___ |
| 8. Locally developed pre-test or post-test for subject matter knowledge | ___ C ___ |
| 9. Major paper/project | ___ C ___ |
| 10. Portfolio containing representative examples of student work | ___ C ___ |
| 11. Capstone course work (e.g. senior level seminars) | ___ C ___ |
| 12. Audio/video recording of presentations/performances | ___ C ___ |
| 13. Employer/supervisor internship/practicum report | ___ C ___ |
| 14. Summative performance assessment (i.e. recitals, art exhibits, etc.) | ___ C ___ |
| 15. Theses/Dissertations | ___ A ___ |
| 16. Student publications and presentations of research work | ___ A ___ |
| 17. Documented lab demonstrations/exercises | ___ A ___ |
| 18. Other: | _____ |

Part II: Assessment of Outcomes - Continued

Indirect methods of assessment:

(Enter A, B, C)

- | | |
|--|-----------|
| 1. Job placement of graduating students | ___ A ___ |
| 2. Employer surveys and questionnaires | ___ C ___ |
| 3. Graduate School acceptance rates | ___ C ___ |
| 4. Student graduation/retention rates | ___ C ___ |
| 5. Exit Interviews | ___ C ___ |
| 6. Student satisfaction surveys | ___ C ___ |
| 7. Student Course evaluations | ___ C ___ |
| 8. Focus group discussions | ___ C ___ |
| 9. Alumni surveys | ___ C ___ |
| 10. Tracking of alumni honors, awards, and achievements at local, state, and national levels | ___ C ___ |
| 11. Identification and assessment of at-risk students | ___ C ___ |
| 12. Analysis of student grade distributions | ___ C ___ |
| 13. Examination of information contained in department's own database | ___ C ___ |
| 14. Other evaluations of course instruction (e.g., chair or peer review) | ___ C ___ |
| 15. Curriculum/syllabus analysis (e.g., analysis of transfer student preparation) | ___ C ___ |
| 16. Community perception of program effectiveness | ___ C ___ |
| 17. Community service/volunteerism participation | ___ C ___ |
| 18. Other: _____ | ___ C ___ |
| _____ | ___ |
| _____ | ___ |

Part III: Other Information

1. Has this program used any of the direct or indirect methods listed above to improve student learning, operational effectiveness, student services, and/or general operations?

Yes No
If Yes, please briefly note 1 - 3 examples

Example 1: *Routinely track numbers of presentations*

Example 2: *Routinely track numbers of publications*

Example 3: *Track job placement of students*

2. What resources (i.e., training, personnel, technology, etc.) does this program need to develop and/or implement better methods for assessing and improving student outcomes and program effectiveness?

3. Please list any additional comments or concerns.

Completed by: David Harmon

Date: **1/13/2010**

Program Student Learning Outcomes for College of Agriculture Degree Programs.

Please list your programs learning outcomes below and return to:
Associate Dean for Academic Programs, N8 Agricultural Science Bldg N. 0091

Note that there is space here for only six outcomes. For most programs, four to six outcomes are sufficient. If your program is accredited, you will likely have more than six. Adapt form as necessary.

Program:	M.S. Program in Animal & Food Sciences
Learning Outcome 1:	Students will demonstrate advanced knowledge and understanding in an area of emphasis offered by the Graduate Faculty in the Department of Animal and Food Sciences.
Learning Outcome 2:	Students will demonstrate competency in the collection, analysis and interpretation of data as it relates to the scholarship of their area of emphasis.
Learning Outcome 3:	Students will be able to effectively communicate scientific findings orally and demonstrate competency in scholarly writing in the form of a master's thesis.
Learning Outcome 4:	
Learning Outcome 5:	
Learning Outcome 6:	

Program Student Learning Outcomes for College of Agriculture Degree Programs.

Please list your programs learning outcomes below and return to:
Associate Dean for Academic Programs, N8 Agricultural Science Bldg N. 0091

Note that there is space here for only six outcomes. For most programs, four to six outcomes are sufficient. If your program is accredited, you will likely have more than six. Adapt form as necessary.

Program:	Ph.D. program in Animal & Food Sciences
Learning Outcome 1:	Students will demonstrate a thorough command of knowledge in an area of emphasis offered by the Graduate Faculty in the Department of Animal and Food Sciences.
Learning Outcome 2:	Students will demonstrate the ability to apply critical scientific thought in the application of hypothesis formation, and the design and execution of experiments.
Learning Outcome 3:	Students will demonstrate competency in the collection, analyses and interpretation of data as it relates to the scholarship of their area of emphasis.
Learning Outcome 4:	Students will be able to effectively communicate scientific findings orally and demonstrate competency in scholarly writing in the form of a doctoral dissertation.
Learning Outcome 5:	
Learning Outcome 6:	

Assessment of Graduate Student Learning – MS Thesis/Report Defense

Department of Animal and Food Sciences

Student Name: _____

Date of Exam: _____

Type of Exam (*please choose one*): Thesis Report

Result of Exam (*please choose one*): Pass Fail

1. Evaluator’s relationship to student (*please choose one*):

- Major or Co-Major Professor Member of the Supervisory Committee Member of the Graduate Faculty

2. Please rate the student in the following areas by marking the appropriate boxes.

	Excellent (4)	Good (3)	Fair (2)	Poor (1)	Unable to judge (0)
Knowledge and understanding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Essentially complete knowledge and understanding in his/her area of emphasis, with no errors in fact, integration, or application of fundamental concepts	Advanced knowledge and understanding in his/her area of emphasis, with limited errors in fact, integration, or application of fundamental concepts	Basic knowledge and understanding in his/her area of emphasis, with some errors in fact, integration, or application of fundamental concepts	Considerable lack of advanced knowledge and understanding in his/her area of emphasis, with frequent or substantial errors in fact, integration, or application of fundamental concepts	
Data collection, analysis, interpretation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Standards of data collection, analysis, and interpretation are complete and thoroughly developed	Standards of data collection, analysis, and interpretation are mostly complete and developed	Standards of data collection, analysis, and interpretation are somewhat incomplete or underdeveloped	Standards of data collection, analysis and interpretation are significantly incomplete or underdeveloped	
Oral communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Presentation is excellent, compelling and sustains interest, well-rehearsed and professional	Presentation is good, generally maintained audience interest, reasonably rehearsed, and generally professional	Presentation is fair, often failed to maintain audience interest, minimally rehearsed, and somewhat unprofessional	Presentation is poor, fraught with errors that distract listeners, dull, unrehearsed, or unprofessional	
Written communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Thesis/report is clearly written in a professional manner, with few spelling or grammatical errors	Thesis/report is generally written in a professional manner, with occasional spelling or grammatical errors	Thesis/report is not consistently written in a professional manner, with many spelling or grammatical errors	Thesis/report is written in an unprofessional manner, with frequent or substantial spelling or grammatical errors	

Comments (*continue on back if necessary*):

Assessment of Graduate Student Learning – Ph.D. Dissertation Defense

Department of Animal and Food Sciences

Student Name: _____

Date of Exam: _____

Result of Exam (*please choose one*): Pass Fail

1. Evaluator’s relationship to student (*please choose one*):

Major or Co-Major Professor Member of the Supervisory Committee Member of the Graduate Faculty

2. Please rate the student in the following areas by marking the appropriate boxes.

	Excellent (4)	Good (3)	Fair (2)	Poor (1)	Unable to judge (0)
Knowledge and understanding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Essentially complete knowledge and understanding in his/her area of emphasis, with no errors in fact, integration, or application of fundamental concepts	Advanced knowledge and understanding in his/her area of emphasis, with limited errors in fact, integration, or application of fundamental concepts	Basic knowledge and understanding in his/her area of emphasis, with some errors in fact, integration, or application of fundamental concepts	Considerable lack of advanced knowledge and understanding in his/her area of emphasis, with frequent or substantial errors in fact, integration, or application of fundamental concepts	
Critical scientific thinking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Standards of critical thinking, hypothesis formation, experimental design and execution are complete and thoroughly developed	Standards of critical thinking, hypothesis formation, experimental design and execution are mostly complete and developed	Standards of critical thinking, hypothesis formation, experimental design and execution are somewhat incomplete or underdeveloped	Standards of critical thinking, hypothesis formation, experimental design and execution are significantly incomplete or underdeveloped	
Data collection, analysis, interpretation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Standards of data collection, analysis, and interpretation are complete and thoroughly developed	Standards of data collection, analysis, and interpretation are mostly complete and developed	Standards of data collection, analysis, and interpretation are somewhat incomplete or underdeveloped	Standards of data collection, analysis and interpretation are significantly incomplete or underdeveloped	
Oral communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Presentation is excellent, compelling and sustains interest, well-rehearsed and professional	Presentation is good, generally maintained audience interest, reasonably rehearsed, and generally professional	Presentation is fair, often failed to maintain audience interest, minimally rehearsed, and somewhat unprofessional	Presentation is poor, fraught with errors that distract listeners, dull, unrehearsed, or unprofessional	
Written communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dissertation is clearly written in a professional manner, with few spelling or grammatical errors	Dissertation is generally written in a professional manner, with occasional spelling or grammatical errors	Dissertation is not consistently written in a professional manner, with many spelling or grammatical errors	Dissertation is written in an unprofessional manner, with frequent or substantial spelling or grammatical errors	

Comments (*continue on back if necessary*):

External Review

University of Kentucky
College of Agriculture

Department of Animal & Food Sciences
Periodic Departmental Review
Conducted-- April 11-13, 2012

Final Report
Submitted-- May 9, 2012

Review Team

Craig N. Carter, Director & Professor (Team Leader)
University of Kentucky Veterinary Diagnostic Laboratory

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Jim Kinder, Professor
Former Chair of Department of Animal Sciences, The Ohio State University

Alan Mathew, Professor
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Steve Isaacs, Professor
Agricultural Economics, University of Kentucky

James Matthews, Associate Professor
Animal & Food Sciences, University of Kentucky

Melissa Newman, Associate Professor
Animal & Food Sciences, University of Kentucky

Introduction

On the request of Dr. M. Scott Smith, Dean, University of Kentucky College of Agriculture (COA), a 5-Year Periodic Review was conducted for the Department of Animal and Food Sciences (AFS) on April 11-13, 2012. The Review Team (RT) received their charge from Dean Smith at a kick-off meeting on January 23, 2012. Specifically, he asked the team to conduct a comprehensive review of research, extension and instructional programs in order to identify challenges, opportunities and areas for improvement. An excellent Self-Study document for AFS was prepared by Dr. Robert Harmon, AFS Chair, and AFS seven faculty members and was made available to the RT in advance of this review. This document was very helpful in orienting the RT members regarding the current state of the Department. The Self Study document also included links to the 2009-2014 Strategic Plans for the COA and AFS.

The first day of the review (Wed, Apr 11th) consisted of a van tour conducted by Dr. Harmon of most of the AFS farm facilities near Lexington, concluded by a walking tour of the Garrigus Building on the UK campus. Farm facilities visited were as follows:

- Coldstream Dairy Research Farm
- Coldstream Poultry Research Facility
- Maine Chance Horse Research Unit
- C. Oran Little Beef Cattle Research Unit
- C. Oran Little Swine Research Unit
- C. Oran Little Sheep Research Unit

On the second and third days of the review, members of the RT met with the following groups:

- Department Chair
- Extension Faculty
- Teaching & Research Faculty
- Undergraduate and Graduate Students
- Three Associate Deans
- Administrative/Hourly/Salaried Staff
- Commodity Group Representatives

Four 15-minute time slots were advertised for AFS Faculty to have special private appointments to meet with the RT, but none of these slots were utilized. Overall, members of the RT found the review process to be very well-organized. A copy of the schedule that was followed is included as Appendix I of this document. This report is subdivided into several sections which present the findings of the RT, beginning with an Executive Summary.

Executive Summary

The Department has a rich and long-standing history dating back to the 1800's and continues to make many outstanding contributions in the fields of nutrition, breeding, production, physiology and management systems. The Department's Institute of Food Technologists (IFT) accredited program in food sciences has been in place for over 20 years and now has an enrollment of 29 undergraduate students. The Equine Science and Management degree was established as a stand-alone program in 2007. This program has been very successful with the bulk of the instruction being delivered by the AFS faculty. Attention is now being given to emerging agricultural issues such as production efficiency, sustainability, animal welfare, and environmental stewardship.

The purpose of this Executive Summary is to highlight major findings by the Review Team. Detailed findings for specific areas are listed in the balance of the report.

Major Strengths:

- The Chair is doing an outstanding job of leading the Department with a firm strategy of continuous quality improvement.
- AFS enjoys a superior and energetic Faculty and Staff with high morale.
- The research faculty and staff level of productivity is commendable and are achieving high levels of recognition.
- The Extension faculty and staff are having an enormous positive impact on agriculture throughout the state.
- Overall, instructional programs appear to be doing an excellent job of preparing graduates for careers in all majors.
- Commodity group representatives regard the UK AFS program highly.

Major Challenges, Opportunities and Areas for Improvement:

- The Department and COA must enhance/increase regular communication with commodity groups and stakeholders.
- Strategies must be developed to expand the delivery of distance learning, on-line courses and the virtual classroom concept.
- Assurances are needed that faculty receives performance credit for all major activities.
- The faculty and Department must reach out for more collaborative projects/opportunities.
- A facilities/classroom improvement initiative is needed.
- Work must be done to reduce administrative/financial bureaucracy to increase efficiency and reduce faculty/staff frustration.
- Consideration must be taken of the balance between a species and discipline approach for teaching/research. This is critical to the continued success of the Department.
- Study the interactive benefits/costs of targeted program expansion/reduction, with consideration of the impending new University budget model.
- Teaching loads must be properly balanced to allow the faculty to address other program priorities.
- The Department should consider how to better support undergraduate

students in judging events and club activities.

Administrative Leadership

The AFS Department has been particularly fortunate to have the long-term, dedicated leadership of Dr. Robert Harmon since 2001. During this period, he has done an outstanding job of recruiting faculty and staff, improving facilities, maintaining competitive research funding, increasing peer-reviewed scientific publications and productivity by research faculty and scientists. Because of his leadership, the Department and the AFS faculty have received prodigious national and international recognition and many awards for research and teaching productivity. Finally, Dr. Harmon has developed and nurtured an Extension Program that is envied across the Country.

Strengths:

- Dr. Harmon's strong and steady leadership has earned the full respect of his faculty and staff.
- Dr. Harmon is perceived to be exceedingly fair and trustworthy by faculty and staff.
- Dr. Harmon has created a work environment in which the faculty and staff thrive and enjoy their jobs.
- Faculty and staff know that they can come to Dr. Harmon for assistance as needed.
- Dr. Harmon is an outstanding mentor and role model for faculty, students and staff.
- In spite of challenging economic times, Dr. Harmon has worked diligently and has been successful in continuing to maintain and improve facilities, acquire new instrumentation and equipment, and recruit needed faculty and staff members.
- The faculty and staff believe that Dr. Harmon will work hard and fight for what is right for the Department and its students.
- Dr. Harmon has developed an excellent rapport and relationship with the COA administration.
- The faculty and staff appreciate the accessibility of Dr. Harmon and the administrative staff.

Challenges, Opportunities and Areas for Improvement:

- There is a need to improve communication with industry stakeholders and commodity groups.
 - ✓ The Chair should consider establishing an Industry Advisory Committee (IAC) which should meet regularly (1-2 times/year) to effectively communicate departmental productivity, accomplishments, challenges and obstacles to stakeholders. In addition, the Department needs to listen to and consider the IAC's discussions and recommendations.
 - ✓ The Department must also listen to stakeholder ideas and suggestions

regarding how AFS research and teaching programs can be improved.

- Consideration should be given as to how faculty performance reviews are being conducted to ensure the best possible outcome (i.e. faculty grading their peers).
 - ✓ Look at alternative systems for performance reviews.
 - ✓ Encourage the College to explore possible alternatives.
 - ✓ Is enough credit being given for teaching activities?
- The Department should consider if new faculty hires should be commodity based, discipline based or a mix.
 - ✓ Meet with AFS faculty and COA administration to discuss their perspectives and opportunities to enhance programmatic endeavors through collaborations.
 - ✓ Form a strategy for future recruiting.
- Garrigus and some farm facilities are in poor repair.
 - ✓ The Chair should develop a long-term plan to correct facility deficiencies.
 - ✓ Communicate this plan to the COA administration.
- There are possibly more opportunities for collaborative projects and synergy with the UK Medical Center
 - ✓ The Chair should meet with the Medical Center faculty to identify possible collaborations in line with the One Health concept.
- Distance learning/on-line course offerings are lagging in the COA and at UKY.
 - ✓ The Chair should work with the Dean and higher administration to strategize regarding how progress can be made in this area.

Research Programs

AFS continues to build and maintain strong discovery and applied research programs focusing on animal biology, management, nutrition, food processing and safety/security. Research studies are ongoing on beef cattle, dairy cattle, swine, poultry, ovine, and equine species.

Strengths:

- AFS has 37 strong faculty members with research appointments supported by 41 research technical positions.
- AFS research programs have historically been very well funded, consistently ranking at the top of all COA departments.
- Publication productivity (measured in articles per faculty FTE) in peer-reviewed journals continues to grow despite a decline in research faculty numbers.
- A strong international visiting scholar program was evident.
- The Faculty has received much recognition and many awards for individual research achievements in animal and food science.
- Morale is very high among the research faculty.

Challenges, Opportunities and Areas for Improvement:

- While facilities are extensive, laboratory space in Garrigus, Ag Science North and the dairy research facility are in great need of renovation and/or replacement.
- Administrative bureaucracy in business and accounting practices is very frustrating for the faculty and staff
 - ✓ Work with COA administration to streamline purchasing and other business transactions related to research projects.
 - ✓ Work toward building more administrative support to streamline operations and improve efficiency of the COA and AFS.
- The Chair should make nutrition and food science a high departmental priority for development and growth.
 - ✓ Relationships with other nutritional sciences faculty members at UK needs to be re-assessed.
 - ✓ Use nutrition and food science as a bridge to the UK medical center and collaborative projects (e.g. obesity, chronic diseases). This must be addressed through strong multi-disciplinary approaches.
 - ✓ More emphasis on functional food science is needed.
- Faculty retirements in nutrition disciplines may detract from the reputation in this area.
 - ✓ Evaluate future recruiting strategies to help preserve excellence in nutrition.
- The Department should consider if a strong discipline or species focus is the best approach regarding research goals.
 - ✓ Strategically plan for priority areas to focus on research programs.
- The Department receives only 10% of Facilities and Administrative costs (F&A) on grants.
 - ✓ Work with the VP for Research to improve sharing of F&A to increase departmental incentives.
- AFS may want to consider focusing more on animal welfare and the social aspects of the animal industries.
- AFS should strive to better engage in collaborative research outside the Department and particularly explore opportunities with other universities, especially in areas where there are high quality UK food animal research facilities.
- AFS should consider maintaining a strong swine research program due to national need and the superb swine facilities at UKY.

Extension Programs

The AFS Agricultural Extension program currently consists of 14 faculty members, 1 specialist and 9 extension associates that conduct more than sixty major educational and service programs for the benefit of animal agriculture, animal health, 4H and beyond.

Strengths:

- Overall, Extension and 4H programs are very strong.
- AFS Extension faculty and staff relationships with county staff are very good.

- State Specialists work well with county educators and producers to do build and deliver programming.
- Extension Specialists have freedom to be creative in building programming.
- There is much excitement about the dairy Extension programs.
- Many relevant applied research projects are being conducted.
- Extension is very well-connected with commodity groups.
- Extension Specialists are making great and positive impacts in counties, resulting in many success stories.
- Graduate students are very pleased with their experiences gained in working with Extension Specialists.
- Morale is excellent among the Extension faculty and staff.
- Grant-funded Extension Associates have done a great job of developing educational tools.

Challenges, Opportunities and Areas for Improvement:

- There are limited facilities or technical support to develop web-based Extension programming.
 - ✓ Little credit is given to developing software-based educational tools such as webinars and web sites at the time of Extension Specialist program evaluations.
 - ✓ Many county offices have a stronger information technology infrastructure than is available at the State level
 - ✓ IT personnel to assist at the State level are lacking.
- State Specialists cannot keep up with software/hardware sophistication and the rate of change in technology.
- There has been a reduction of attendance at county meetings.
 - ✓ Conduct a study to assess this trend and make appropriate changes to be more effective and efficient in program delivery.
 - ✓ Explore greater use of information technologies to deliver educational materials and classes.
- Extension Specialist teaching load is increasing, limiting the opportunity for Extension travel and delivery of services during academic semesters.
 - ✓ Scheduling of teaching time for Extension Specialists must be a priority.
- Specialists can tolerate the current amount of teaching but don't want it to increase.
- As county agents receive greater salary support from local taxes, they may be less loyal to UK and its specialists. There is some concern that there may be loss of strength on the state side (faculty specialists) as budgets decrease.
- The Extension Faculty is not getting adequate credit for student advising, work on newsletters or similar activities.
- Much funding support for Extension comes from the Agricultural Development Fund (ADF) and grant funding. How will this be addressed when these funds are gone?
- Travel funding to the counties is limited for Extension Specialists and staff.
- Intensive food animal sectors (e.g., poultry, dairy, pork) need stronger multistate relationships to conduct effective Extension programming.

- Fee-based programs are not likely to be a viable solution to Extension funding cuts. Counties already provide excellent financial support Extension programs.
- Possibly too much emphasis is placed on generating Extension publications that may have little impact.
- Extension Specialists are not given enough credit for supporting 4H programs at evaluation time.
- When vacancies occur, the tendency is to hire back into the same program area.
 - ✓ The Department should re-evaluate priorities when vacancies occur to determine if the focus of the position should shift.

Academic Programs

AFS currently offers three undergraduate majors: Animal Science (ASC); Food Sciences (FSC); and Equine Science and Management (EQM) with a total of 466 students currently enrolled. In addition to traditional classroom instruction, AFS is very committed to “hands-on” experiential learning on the farm, field trips, in the laboratory and through internships and experience abroad. Three years ago, AFS adopted five core learning objectives for all courses in the three majors. Overall, the AFS undergraduate teaching program is currently very strong and receives high marks from the faculty, staff and students.

Strengths:

- The AFS undergraduate teaching program is well respected.
 - ✓ For example, Purdue reached out to collaborate with the AFS program because of its strong reputation for instruction and quality of science (re: USDA Higher Education Challenge Grant).
- Morale of the undergraduate teaching faculty and staff in AFS is excellent.
- Undergraduate and graduate students rate their experience in the AFS programs strongly and believe they are receiving excellent preparation for their careers.
- Undergraduate and graduate students are very appreciative of the personalized attention they receive from the AFS faculty and staff.
- The EQM program has achieved great success in a very short timeframe.
- Several AFS faculty members have received teaching awards and recognition for their teaching excellence.
- The 2012 alumni survey revealed a high level of success and satisfaction in the area of overall educational experiences and skill set preparation for careers among graduates of the AFS program during the last ten years.
- The recent addition of the Academic Program Coordinator seems to be working very well.
- The graduate student organization is well supported by the administration and, most importantly, has helped graduate students to network and get to know each other.

Challenges, Opportunities and Areas for Improvement:

- Some faculty members in the EQM program are overwhelmed with undergraduate

student advising responsibilities.

- ✓ Possibly shift some of these responsibilities to the Academic Program Coordinator
- Faculty retirements may create gaps in the ability to teach some courses (e.g. monogastric nutrition, food science, poultry science).
 - ✓ Evaluate future recruiting strategies to ensure that all core teaching areas are covered.
 - ✓ Consider more multi-university instruction for courses where faculty expertise does not exist at UK.
 - ✓ Study the need for teaching certain courses based on national need and availability.
- The FSC major has great potential for growth at the undergraduate and graduate levels yet faculty is nearing maximum student load capacity. Due to program accreditation requirements, some courses cannot be dropped.
 - ✓ Develop strategies to increase the visibility and branding of the program to increase interest of potential students.
 - ✓ Create options to add new faculty.
 - ✓ The HES program in Nutrition and Food Science is confusing to current and prospective students and needs to be resolved (we believe this is already being addressed).
 - ✓ Directors of undergraduate/graduate programs believe that FSC graduates will have strong career opportunities. This view is consistent with the vision of the University and College leadership.
- Classroom space on campus is inadequate and some classrooms not well equipped.
 - ✓ The Administration should pursue expanded classroom space as a campus-wide initiative. Also, there is a need for classroom arena space on campus to facilitate teaching with live animals to decrease the need for students to travel off-campus for teaching/laboratory sessions.
- There are several colleges in Kentucky that offer Animal Science majors.
 - ✓ This might provide opportunities for collaborative instruction/projects.
- Undergraduate students have some concern about the increasing focus on research and Extension programming.
 - ✓ Work to allow enhanced student access/teaching exposure to the swine and poultry units.
- Undergraduate students involved in judging teams are very frustrated with the lack of administrative support and priority/funding for the teams and coaches. Even when they are entrepreneurial in generating their own funds, they are unable to access and utilize them.
 - ✓ The Administration and Faculty should meet with these student groups to remedy this situation.
- Identifying AFS students willing to work on farm units is difficult.
 - ✓ The Administration and Faculty should seek a means to convey the opportunities and benefits of these experiences.
- Undergraduate students feel there is a lack of faculty involvement in clubs and co-curricular activities.
- Graduate students would like more opportunities for Extension experiences. Extension experience is perceived as being very high quality.
- Graduate students have some concerns regarding course availability but seem to work around this issue without major problems.

- Some graduate students feel the student orientation program could be stronger.
- The swine production course has been dropped from the AFS curriculum.
 - ✓ Some faculty members/students feel this situation needs to be re-evaluated.
- The Faculty feels that teaching and advising are not rewarded adequately and in fact penalizes them because of decreased research productivity (related to time committed to teaching and advising).
- The Directors of the undergraduate/graduate programs feel that the University as a whole is reluctant to embrace the virtual classroom model. Therefore, the COA is struggling with how to move forward with technology, on-line courseware, and teleconferenced lectures. There is no sustainable plan to do all the teaching with decreased faculty FTEs and increasing student load. The Department must use technology to teach more effectively and efficiently.
 - ✓ The AFS administration must meet with academic deans in and outside the COA to develop strategies to move forward.
 - ✓ Should classroom time be more of a Q&A session with basic didactics provided on-line?
- The campus administration is not embracing Ag*Idea consortium concept for teaching classes across campuses.

Industry Commodity Groups/Stakeholders

Overall, the industry commodity groups and stakeholders attending the discussion session voiced strong support for the AFS academic, research and extension programs.

Strengths:

- Graduate student work experiences with Extension Specialists and County Extension agents is perceived as very good with many success stories being conveyed.
- The 4H program is very important and is very strong.
- The Extension faculty and staff are very responsive to their clientele and county agents.
- The dairy farmer leadership is very supportive of AFS Extension programs.
- Multi-state programming seems to be working well.

Challenges, Opportunities and Areas for Improvement:

- There is a need for more emphasis on sheep and goat programs and an additional Extension Specialist. Multi-state programming may help to ameliorate this problem.
- There is concern about heavy teaching loads for Extension Specialists.
- There is concern that more faculty members with food animal production expertise are not involved in teaching introductory classes.
- The AFS administration must emphasize that all faculty members and specialists are fully utilizing information technology. Web sites should provide up-to-date, informative content for county agents.
- The RT recommends one or two stakeholder (advisory board) meetings per year to discuss and critique teaching, research and extension programs and to

examine and make recommendations regarding budgetary issues and needs.

Staff

Strengths:

- In general, staff members feel that they are well-integrated with teaching, research and extension programs.
- Excellent relationships with supervisors and graduate students was evident.
- The working environment of the Department is collegial.
- There is good departmental administrative and faculty support for staff professional development (e.g. advanced degrees).
- All appreciate Chair's open door policy and willingness to listen and help in problem-solving.
- With the advent of the computer, the Faculty is much less dependent on staff for support.
- Overall, the morale of staff members seems good, in spite of budget cuts and other uncertainties.

Challenges, Opportunities and Areas for Improvement:

- The alternating floors in Garrigus impede faculty and staff interactions.
- IT support inadequate to meet faculty/staff needs for technology-intense instructional and extension programming.
- The Department should consider including staff representatives at some faculty meetings to improve communication.
- Extension Associates and farm managers are becoming more involved in instruction than in the past. There is concern that they are doing Extension Specialist work for much less pay.
- There is concern that budget and staff cuts will reduce opportunities for staff professional development.

Overall Summary

The Department of Animal & Food Sciences continues to provide excellent leadership in the areas of teaching, research and extension. In spite of budgetary and other significant challenges, the AFS faculty members and staff are highly productive, motivated and nationally recognized for their programs. However, in the true spirit of continuous quality improvement, there are always opportunities to do better. The Review Team has worked to identify some specific areas of consideration for the Department Chair, faculty, staff and the COA administration that hopefully will help to move AFS programs successfully into the future.

The Review Team members consider it a great honor and privilege to have had the opportunity to conduct this 5-year review. Many thanks to COA Dean Scott Smith, Associate Dean Nancy Cox, Assistant Dean Lisa Collins, Brook Stone, the COA administrative faculty & staff, Dr. Robert Harmon, Chair AFS, and his distinguished faculty and staff for their time and effort to make the review possible.

Appendix I

Animal and Food Science 2012 Periodic Program Review Site Visit Schedule *Chair, Craig N. Carter*

Location: All meetings – 341 Barnhart (directions attached)
Dr. Harmon to drive van for farm tours; Craig Carter to pick up and drop off on Apr 12-13
Problems any day or time? Call Craig at 859-321-4890

Date - April 11, 2012

Day - Wednesday

8:00 AM – 12:00 PM	Outside Review Committee members travel to Lexington – Embassy Suites Hotel, 1801 Newtown Pike (directions attached)
1:00 PM – 6:00 PM	Farm Tours by Dr. Bob Harmon (committee members will be picked up at their hotel at 1:00 PM. Dr. Cox will attend if possible)
6:00 PM – 9:00 PM	Committee members and Dr. Cox dine with Dr. Harmon, Sal's Restaurant

Date – April 12, 2012

Day - Thursday

7:30 AM - 9:00 AM buffet	Review Committee Breakfast meeting (with Dept Chair) - Embassy Suites breakfast
9:30 AM - 10:30 AM	Meet with Department Extension Faculty (~14 max) -- 341 Barnhart
10:30 AM - 11:30 AM	Meet with Department Teaching and Research Faculty (~25 max) -- 341 Barnhart
11:30 AM - 12:00 PM	Summarize notes -- 341 Barnhart
12:00 PM - 1:00 PM	Lunch Undergraduate Students (Animal Science, Food Science, Equine, ~16 max) -- 341 Barnhart, box lunch or pizza
1:00 PM - 2:00 PM	Meet with Directors of Undergraduate and Graduate Studies (Bill Silvia, Bob Coleman, Dave Harmon, Clair Hicks and Ann Leed) -- 341 Barnhart
2:00 PM – 3:30 PM Barnhart	Associate Deans 1/2 hour each (Nancy Cox, Jimmy Henning, and Larry Jones) -- 341
3:30 PM - 4:00 PM	Administrative Staff -- 341 Barnhart
4:00 PM - 4:30 PM	Hourly staff -- 341 Barnhart
4:30 PM – 5:00 PM	Salaried staff (Professional Research and Extension Staff) – 341 Barnhart
6:00 PM - 8:00 PM	Review Committee Dinner, Guests, Embassy Suites restaurant (Committee members only)

Date – April 13, 2012
Day - Friday

7:30 AM - 9:00 AM	Breakfast with Extension Coordinators (Beef, Swine/Youth, Dairy, Poultry & Equine) Embassy Suites breakfast buffet
9:00 AM – 10:00 AM	Discussion and draft report preparation – 341 Barnhart
10:00 AM - 12:00 PM	Clientele/Commodity Groups/Extension Agents – 341 Barnhart
12:00 PM - 1:00 PM	Lunch Graduate Students – 341 Barnhart, box lunch or pizza
1:00 PM - 2:00 PM	Animal and Food Science Faculty, individual slots by faculty appointment (fifteen minutes) -- – 341 Barnhart (contact Dr. Carter for appointment, craig.carter@uky.edu or cell 859-321-4890)
2:00 PM - 4:00 PM	Writing and preparation for Oral Presentation and Draft Document – 341 Barnhart
4:00 PM - 5:30 PM	Oral Report to Dean -- – 341 Barnhart
5:30	Outside reviewers back to hotel or travel home

Implementation Plan

UK Program Review Implementation Plan

Template website:

This **required** form is described as Appendix A in AR II-I.0.6.

College/Unit: Department of Animal and Food Sciences

Date: 3/25/2013

Recommendation/ Suggestion	Source I/E/H*	Accept/ Reject**	Unit Response (resulting goal or objective)	Actions (including needed resources & approximate cost)	Time Line
Enhance and increase regular communication with commodity groups and stakeholders	E	A	Formerly, a departmental advisory group made up of all commodities met with little success. A network of stakeholder groups already exists with faculty/chair representation including KY Farm Bureau Advisory Committees and individual commodity organizations. The objective will be to improve communications of departmental activities/progress through this network.	The chair will meet with departmental representatives to the stakeholder groups and outline new expectations for communicating departmental progress/challenges to these groups.	18 months
Develop strategies to expand the delivery of distance learning, on-line courses, and the virtual classroom concept	E	R	As numbers of faculty have decreased in the department, teaching loads have increased. Developing new on-line courses would require more faculty resources or other models. The goal will be to evaluate the feasibility and need for delivery of distance learning courses.	Curriculum Committee will be charged to evaluate potential areas of need for distance courses and recommend how those courses might be developed and delivered. Should include Agldea.	24 months
Explore how faculty can be certain to receive performance credit for all major activities	E	A	DOE in teaching is perceived to be the biggest issue. AFS follows the College guidelines for instruction DOE and performance evaluations, consistent with AR's, that faculty must be consulted. The goal will be for faculty to consult with the chair when calculating instruction (or other) DOE and determine when special assignments are justified.	A form has been developed to calculate teaching DOE. Faculty are responsible for accounting for all teaching DOE and discussing with the chair before finalizing DOE for the next year. Performance evaluations will include faculty evaluation committees and include evaluation based on faculty documentation of each component of the DOE.	12 months
Explore how faculty and departmental leadership can	E	A	In reality, collaborative projects are faculty driven based on common interests. The objective will be to	Expanded collaborations with other units and disciplines will be discussed in a future faculty meeting, identifying	36 months

expand collaborative projects and opportunities with other units			facilitate the identification of collaborative opportunities that contribute to faculty success.	strategies for success. The department will begin tracking collaborations for future reporting.	
Develop a plan for a facility and classroom improvement initiative	E	A	Garrigus classrooms 108 and 109 are in need of renovation as are teaching labs 104, 105, and 106. B-52 has been renovated previously. The goal will be to plan and implement classroom improvements over the next 24 months.	Room 109 is slated for renovation in summer 2013 and 108 is scheduled for summer 2014. The chair is working with the College to upgrade 104, 105, & 106 in 2013 and 2014 as funds allow. Cost is unknown.	36 months to fund and complete.
Work with COA administration to simplify business and accounting practices	E	A	We must follow business procedures adopted by the college as mandated in the University Business Procedures Manual. The goal will be to evaluate any new suggested practices for their impact on faculty and staff resources.	All proposed new business procedures and practices are reported to the college chairs group. The chairs will provide suggestions to the college administration and Business Office to minimize impact on faculty time while accomplishing the intent of each practice.	Ongoing
Consideration must be taken of the balance between a species and discipline approach for teaching/research. This is critical to the continued success of the department.	E	A	In 2011, the department reached consensus on the necessity to be more intentional at emphasizing a discipline approach in teaching/research, while addressing our responsibility to our stakeholders (species issues). The goal will be to strengthen our programs through multidisciplinary approaches to problem areas and consideration of disciplinary emphases when planning new hires.	Progress in this area is dependent upon transition over time. Discussions of species/discipline balance will be initiated in faculty meetings and strategies will be developed. The chair will mentor junior faculty regarding multidisciplinary opportunities. As new faculty hires are discussed, discipline emphases will be strongly considered.	36 months
Study the interactive benefits/costs of targeted program expansion/reduction, with consideration of the impending new university budget model	E	A	In a 2011 faculty retreat, consensus was that the department must continue representation of all commodity groups. The goal will be to continuously evaluate the impact of the new budget model on the fiscal environment of the department and the ability to continue programs as we know them.	The new budget model will be studied and shared with faculty in the "shadow" year and during implementation to evaluate the potential impact on our programs.	36 months
Teaching loads must be properly balanced to allow the faculty to address other program priorities	E	A	While the chair is fully supportive of this concept, loss of faculty positions has necessitated the redistribution of teaching responsibilities based on faculty expertise. The goal will be to develop a	With pending retirements, discussions have begun with faculty and the college regarding priorities for future faculty hires. Teaching needs will be a strong consideration in future faculty	36 months

			faculty hiring plan for future vacancies that considers both teaching and research/extension needs.	hires.	
The department should consider how to better support undergraduate students in judging events and club activities	E	R	Unfortunately, students do not understand the level of support judging teams already receive, and stretched budgets prevent additional direct support of these activities. The goal will be to investigate development opportunities to help support judging teams.	The department has two endowments that support collegiate judging programs. The chair will meet with the college Development Officer and develop a fundraising plan to enhance endowments.	24 months

* Source of Recommendation (I = Internal recommendation; E = External Review Committee recommendation; H = Unit Head recommendation)

** Accept/Reject Recommendation (A=Accept; R=Reject)

Unit Head Signature: Robert Harmon Unit Chief Administrative Officer (CAO) _____ Date: _____