



2014-2015

**Department of
Equine Science and
Management
Periodic Program Review**

Submitted May 2015

Department Self-Study Report Checklist

Academic Department (Educational) Unit Overview:		Page Number or NA
1	Provide the Department Mission, Vision, and Goals	1
2	Describe centrality to the institution's mission and consistency with state's goals: A program should adhere to the role and scope of the institution as set forth in its mission statement and as complemented by the institutions' strategic plan. There should be a clear connection between the program and the institutions, college's and department's missions and the state's goals where applicable.	2
3	Describe any consortial relations: The SACS accreditation process mandates that we "ensure the quality of educational programs/courses offered through consortial relationships or contractual agreements and that the institution evaluates the consortial relationship and/or agreement against the purpose of the institution." List any consortium or contractual relationships your department has with other institutions as well as the mechanism for evaluating the effectiveness of these relationships.	14
4	Articulate primary departmental/unit strategic initiatives for the past three years and the department's progress towards achieving the university and college/school initiatives (be sure to reference <u>Unit Strategic Plan</u> , <u>Annual Progress Report</u> , and most recent <u>Implementation Plan</u>)	1
5	Department or unit benchmarking activities: Summary of benchmarking activities including institutions benchmarked against and comparison results: <ul style="list-style-type: none"> • number of faculty • number of students • etc. 	5
Faculty and Graduate Students:		
6	Number of faculty and FTE breakdown by DOE, faculty list, brief bios or CVs	7
7	Overview of current research program and plans. Describe primary faculty contributions to the three-four strongest research and creative areas in the department.	29
8	Describe primary faculty contribution to teaching and service at the department level that have enhanced college and university strategic initiatives.	NA
9	Describe attrition (cumulative number not tenured, resigned, retired, or other) of the program faculty over the past three years. Discuss the expected effect on program under review and other issues related to ability to retain qualified faculty during the past three years.	8
10	List current number of unfilled lines and discuss current actions or plans to fill line. Include general description of "start-up" packages.	NA
11	Number of graduate students and departmental-level TAs and RAs. List the salary range for TAs and RAs and estimate the number on fellowship for the current or most recent fall semester.	8
12	Describe the reasons students reject fellowships or assistantship offered from the university, college, or department/unit.	NA
13	Number of postdocs	NA
14	List of grants and contracts for the period of review, including funding amounts	NA
15	Faculty fellowships	NA
16	Faculty honors & recognition	8
17	Publication list for period of review, including graduate and undergraduate publications	NA
18	Undergraduate research activities & initiatives (if applicable)	8

	Documentation of Implementation of Policies & Procedures: Identify the educational policies and procedures established through faculty governance and responsible parties for implementation. Explain dissemination and transparency.	Page Number or NA
19	Evidence of adherence to educational policies and procedures established through the faculty governance process, including consistency in applying policies related to grading, probation, admissions, termination	9
20	Evidence of consistent review and monitoring of course substitution, course equivalency credits, course substitutions, course transfers toward degree completion, and vetting of exceptions, degree requirements	9
21	Evidence of adherence to unit procedures on faculty personnel actions (e.g., appointment, promotion and tenure) and budget request preparation	NA
22	Evidence of course scheduling and teaching assignment	6, Appx C
	Academic (Degree) Program Description:	
23	Program demand/unnecessary duplication: <ul style="list-style-type: none"> • Number of UG and G students enrolled and credit hour production • Number of UG and G degrees conferred • Explanation of how curriculum is different from existing programs at other state institutions or that access to these programs is limited • Explanation of pursuit of collaborative opportunities with similar programs at other institutions and how collaboration will increase effectiveness and efficiency 	10
24	Program history and background/organizational structure: Critical events/background information which will help in understanding the program currently.	1
25	Program uniqueness: Unique components, distinctive innovations. Is the program a response to changes in the discipline or other academic necessities?	14
26	Describe how the program is administered (e.g., is there a program coordinator and/or program committee? What is his or her role or function? How do the administrators of the program operate?)	14
27	Describe the recruitment and development plan for the program (include attention to faculty, staff, and students).	14
28	Program delivery: Review of distance learning course offerings, services and outcomes to ensure compliance with best practices, SACS policies, and federal rules, University Senate and college curriculum committees. Describe flexibility of program delivery. Are classes available at convenient times and in convenient formats for non-traditional students, etc.	16
29	Program contributions to undergraduate general education or UK General Education Core	NA
	Program Quality and Student Success: The curriculum should be structured to meet the stated objectives and student learning outcomes of the program.	
30	Student Learning Outcomes Assessment <ul style="list-style-type: none"> • Evidence of attainment of student learning outcomes for all program delivery, as applicable (e.g., traditional, online, distance education, etc.) • Program assessment of Student Learning Outcomes for graduate programs and undergraduate programs • Assessment results reports and findings for improvement (include evidence) • Evaluation of students' post-graduate success 	16
31	External awards or other recognition of the students and/or program	17
32	Six-year graduation rate	18
33	Employer satisfaction with graduates as measured by surveys and/or alumni satisfaction	19
34	Job placement for undergraduate and graduate students or graduate school admission	18
35	Pass rates on licensure/certification	NA
36	Describe processes used to ensure currency of curriculum (industry advisory boards, pass rates on licensure, standardized tests, etc.)	20
37	Describe quality of orientation, advising, other student services/developmental programs, effectiveness of advising, innovations in advising and efforts to improve	20

38	<p>Instruction: Overview of current instructional program(s) and plans; describe measures of teaching effectiveness and efforts to improve (e.g., faculty development initiatives for instruction, teacher mentor programs)</p> <ul style="list-style-type: none"> • Class sizes and faculty nucleus for program instruction • Instructional equipment • Faculty credentialing to support core/elective course offering • Internship/independent studies/ co-curricular 	21
39	Program qualifications/standards for incoming students, program admission	
Program Resources:		
40	<p>Cost and funding of program. Please show detail.</p> <ul style="list-style-type: none"> • Student credit hour per instructional faculty FTE • Budget summary information and adequacy. Include external funding. 	23
41	Facilities (description and adequacy)	23
42	Equipment (including IT capacity) description and adequacy	25
43	Personnel summary and adequacy (faculty and staff numbers, demographics)	7, 22, 25
45	Support from other university units such as college, research, administration, human resources, development and alumni affairs	23, 26
Input from Affected Constituents:		
46	Evaluation data from staff, faculty, students, (e.g., surveys, focus groups, interviews, etc.) Information gathered from accreditation visit/external reviewers and progress updates since last program review (append external review comments for accredited reviews).	26
Operations:		
47	Quality of faculty & staff communications and interactions, such as awards/recognitions, opportunities for input, unit meeting schedule, unit retreat schedule, opportunities for faculty and staff to interact, organizational chart	26
Service, Extension and Non-Extension Programs:		
48	Summary of quantity and quality of outreach and community service; interrelationship of public service with research and other aspects of the program; nature and quality of service to the university and discipline	29
49	Summary of extension programs by topic	NA
50	Summary of county-level programs	NA
51	Summary of youth programs	NA
52	Summary of community-based programs and training	NA
53	Extension publications, videos, etc.	NA
54	Evidence of public service activities such as congressional testimony, service on boards	NA
55	Number of FTE extension faculty and extension specialists	NA
56	Description and evaluation of outreach, service, and engagement activities	NA
57	Number of clientele served, programs, and training opportunities	NA
Other Areas:		
58	Quality Enhancement Plan (Multimodal Communications Across the Discipline): Please indicate program contribution to the goals of the QEP. See http://www.uky.edu/presentationu/	27
59	University Diversity Plan: Please indicate ways in which the program contributes to the University's Diversity Plan. See http://www.uky.edu/DiversityPlan/diversity_plan.html	27



**Equine Science and Management
Undergraduate Degree Program
College of Agriculture, Food and Environment**

Self-Study for Periodic Review, 2009 – 2014

Submitted by: Dr. C. Jill Stowe, Director of UK Ag Equine Programs

Submitted to: Dean Nancy Cox, College of Agriculture, Food and Environment

Date submitted: August 22, 2014

ACADEMIC UNIT OVERVIEW

Equine Programs

The Equine Initiative was launched in 2005 at the University of Kentucky and within the College of Agriculture, Food and Environment (CAFE) to allow the public access to all of UK's equine programs through one front door and was a commitment by the College to Kentucky's equine industry to offer the same excellence in horse services as it did in other species and aspects of agriculture. In 2012, the Equine Initiative was re-named UK Ag Equine Programs. Hereafter, we refer to this unit as the Equine Programs (EP).

The EP addresses all three pillars of a land-grant institution: teaching, research, and extension. One of the major milestones and centerpieces of the EP is the Equine Science and Management undergraduate degree program (ESMA). The multidisciplinary ESMA undergraduate degree program is one of four in the College; the others are Agricultural Biotechnology (ABT), Natural Resources and Environmental Science (NRES), and Sustainable Agriculture (SAG). The equine-related research and extension activities associated with EP are generally less formal in nature than the teaching component, and in many instances, occurred before the EP existed. Consequently, this document will focus on the ESMA undergraduate degree program; however, at the end of this self-study document, equine-related research and extension activities will be summarized.

More information on the Equine Programs can be found at <http://equine.ca.uky.edu/>.

Unit Mission, Vision, and Goals

The mission of the EP is to discover, share and apply new knowledge on the health, performance and management of horses, enhancing the signature status of Kentucky's equine industry.

The vision of the EP is to be the world leader in equine science and management, research, education and service.

Based on its first strategic plan developed in 2010, EP has **five primary goals**:

- 1) Continue to build a research base of excellence to support the growth and development of equine sciences;
- 2) Increase and document the quantity of qualified Equine Science and Management students;
- 3) Increase EP brand awareness;
- 4) Increase engagement of recreational and professional horsemen in EP by growing specific target market segments;
- 5) Strengthen organizational capacity of EP to fulfill its mission.

Mission and consistency with state’s goals

The mission, vision, and goals of the EP are closely related to all three pillars of the CAFE and University missions, visions, and goals. The primary contribution of the undergraduate degree program is to prepare students to be the next leaders in the equine industry.

Program Organization

As a multidisciplinary unit, the organization of the EP is complex and to some extent informal in nature. The organizational chart for the EP is included in the Appendix A. The director of EP reports to the College’s Associate Dean for Research/Kentucky Ag Experiment Station director and oversees activities related to teaching, research, and extension. As is made evident by this chart, the ESMA degree program is just one component of the larger EP (this point is not always understood, both internally and externally).

A number of committees contribute to the vision and leadership of the EP. These committees are identified below.

College of Agriculture, Food and Environment Equine Programs Advisory Committee

In 2010, a College-level advisory committee was established. The advisory committee reports to the Dean and offers advice from a valued industry perspective about UK’s equine programs. Members serve three-year terms which are renewable at the request of the Dean. The EP Advisory Committee to the Dean is currently comprised of the following members identified in Table 1.

Table 1. CAFE Equine Programs Advisory Committee members, 2014

CAFE Equine Programs Advisory Committee	
Name	Affiliation
Norman K. Luba, Chair	Executive director, North American Equine Ranching Information Council
Stuart Brown, DVM	Hagyard Equine Medical Institute
Andy Clark, DVM, MBA	Andrew R Clark, DVM, MBA, LLC
Edith Conyers	Maryster Farm
Matt Koch	Shawhan Place Farm
Reese Koffler-Stanfield	Maplecrest Farm
Dick Lockhart	Kentucky Paso Fino Horse Association
Kenny McPeck	Kenny McPeck Racing
Glenye Cain Oakford	Author and Freelance Print/Video Journalist
Mike Owens	Cobra Farm
Tom Riddle, DVM	Rood & Riddle Equine Hospital
Fred Sarver	Cornerstone Farm
David Switzer	Past executive director, Kentucky Thoroughbred Association, Inc.

Equine Programs Council (EP Council)

Formed in 2008 by Dr. James MacLeod, the EP Council (formerly the Equine Initiative Executive Committee) provides visionary leadership for research, teaching, and extension and helps share the load for a program that has a less than full-time director appointment. The EP Council is currently comprised of the following members identified in Table 2.

Table 2. Equine Programs Council members, academic year 2014-15

EP Council	
Name	Affiliation
Bob Coleman, PhD	Animal and Food Sciences
Nancy Cox, PhD	Dean and Director, Kentucky Ag Experiment Station
Carleigh Fedorka	Gluck Equine Research Center (graduate student representative)
Lori Garkovich, PhD	Community Leadership and Development
Ben Goff, PhD	Plant and Soil Sciences
Marci Hicks	CAFE Office for Advancement
Elizabeth LaBonty	Animal and Food Sciences
Laurie Lawrence, PhD	Animal and Food Sciences
Norm Luba	Equine Programs Advisory Committee representative
Deborah Maples, DVM, PhD	Veterinary Diagnostic Lab
Martin Nielsen, DVM, PhD	Gluck Equine Research Center
Mary Rossano, PhD	Animal and Food Sciences
Ray Smith, PhD	Plant and Soil Sciences
Don Sorrell	Cooperative Extension Service
Ed Squires, PhD	Gluck Equine Research Center
Jill Stowe, PhD	Agricultural Economics
Holly Wiemers	Equine Programs
<i>Vacant</i>	Undergraduate student representative

ESMA Steering Committee

The ESMA Steering Committee was created by Dr. Larry Grabau, Associate Dean for Instruction in the College of Agriculture, Food and the Environment and is charged with handling comprehensive programmatic changes. For example, the steering committee was responsible for the recent successful curriculum revision. The ESMA Steering Committee is currently comprised of the following members identified in Table 3.

Table 3. ESMA Steering Committee members, academic year 2014-2015

ESMA Steering Committee	
Name	Affiliation
Bob Coleman, PhD	Animal and Food Sciences
Roberta Dwyer, DVM, PhD	Gluck Equine Research Center
Ben Goff, PhD	Plant and Soil Sciences
Elizabeth LaBonty	Animal and Food Sciences
Mary Rossano, PhD	Animal and Food Sciences
Jill Stowe, PhD	Agricultural Economics (interim chair, steering committee)
Kristine Urschel, PhD	Animal and Food Sciences

In addition to these advisory committees, there are two regularly-occurring formal opportunities to work and share information.

College of Agriculture, Food and Environment Equine Forum

The CAFE Equine Forum, first launched in 2006, is a group of approximately 30-50 faculty, staff and students who meet the fourth Friday of each month. Attendees are made up of those who work or are interested in equine topics from within the College, UK, and even outside equine industry stakeholders. There are approximately 150 people on the email distribution list. Meetings consist of updates from events and projects, and a featured presentation, which may be internal or external to UK.

Equine Programs Working Groups

Working groups were formed early on in EP's history, as a group of faculty, staff or students formed sub-units around topic areas of interest. Current working groups include the Equine Agents Working Group, chaired by Don Sorrell; the Equine Nutrition Working Group, chaired by Dr. Laurie Lawrence; and the Pasture and Forage Working Group, co-chaired by Dr. Ray Smith and Dr. Bob Coleman.

Primary unit strategic initiatives

In 2010, the EI Executive Committee (now EP Council) crafted the first strategic plan for the organization. The items which relate to the ESMA degree program are listed below.

Goal 2: Increase and document the quantity of qualified Equine Science and Management students

- Strategy 2.1: Provide strong, relevant education and supporting extracurricular opportunities
- Strategy 2.2: Be at the forefront of assessing student quality
- Strategy 2.3: Encourage involvement of ESM graduates with the Equine Programs

The EP plans on undertaking another five-year strategic planning process for internal purposes as soon as the University’s new budget model, University strategic plan, and CAFE strategic plan are complete.

Benchmarking activities

Only one of the 10 institutions identified by the University of Kentucky as benchmarks, Michigan State University has a program similar enough to be considered as a benchmark for the ESMA degree program. Other land-grant institutions with four-year equine degree programs are Colorado State University (CSU) and University of Arizona (U of A). CSU’s program is most similar to ours; U of A’s best-known program is a highly-specialized racetrack industry program and is not included below. In addition to CSU, the program at the University of Louisville (UofL) is considered another benchmark. Finally, Texas A&M University’s program is considered an “emerging” benchmark; however, the industry may already view it as such. A brief comparison of these four programs to the ESMA degree program is included in Table 4.



Table 4. Benchmarking activities for the ESMA degree program

Institution	Program	Main Similarities to ESMA	Main Differences from ESMA
University of Kentucky	B.S. in Equine Science and Management	Sales prep experience for qualified students (Thoroughbred yearlings) Experiential learning required (3 credit hours) Capstone required	Areas of Emphasis in Science, Business, Community Leadership and Development, and Forages & Pastures
Colorado State University	B.S. in Equine Science	Sales prep experience for qualified students (ranch horses) Experiential learning required (2 credit hours) Capstone required	Required courses in genetics and reproduction All business courses from business school or ag econ (15 hours required) Offers riding courses as electives (Packing & Outfitting and Training & Sales Prep) and therapeutic riding courses
University of Louisville	B.S. in Business Administration in Equine Business Minor in Equine Business	Capstone required	Offers only business courses No required internship Offers certificate in Equine Business (post-baccalaureate)
Michigan State University	B.S. in Animal Science Certificate in Horse Management	Sales prep experience for qualified students (Arabians)	Concentrations in Science, Agribusiness Management or Pre-Veterinary Medicine Long history (in draft horses and then Arabians) Offers riding courses as electives Internship required only for certificate students
Texas A&M University	B.S. Animal Science Certificate in Equine Science (22 credits)	Capstone required	Concentrations in Science, Animal Production/Industry Offers riding courses as electives Internship required only for certificate students

TEACHING PERSONNEL

As an interdisciplinary program, all faculty members who contribute to the EP hold a primary position in a College academic department (not in EP). Faculty members are included as teaching personnel in Table 5 if they teach at least one of the equine-related core courses (with two exceptions) or elective courses in the ESMA degree. Elective courses were selected if at least 75% of the total class enrollment is comprised of ESMA students. Also included are University-approved part-time instructors (PTIs) who may either hold staff positions within the University or be external industry professionals.

Table 5. Teaching personnel for key ESMA courses

Last name	First name	Title	Department/ Affiliation	Course Taught (# of sections)
Bailey	Ernie	PhD, Professor	Gluck	VS 307 (1)
Ball	Barry	DVM, PhD, Dipl. ACT, Professor	Gluck	VS 500 (1)
Camargo	Fernanda	DVM, PhD, Associate Professor, Equine Extension Specialist	Animal and Food Sciences	ASC 310 (1), EQM 351 (1)
Capps	Timothy	Coursework completed for MA, Faculty, Part-Time Instructor	University of Louisville	AEC 300 (1)
Coleman	Bob	PhD, PAS, Extension Horse Specialist, Director of Undergraduate Studies (DUS), Associate Director of UK Ag Equine Programs	Animal and Food Sciences	EQM 490 (2), GEN 109 (1), GEN 300 (1), ASC 410G (1)
Goff	Ben	PhD, Assistant Professor	Plant and Soil Sciences	PLS 510 (1)
LaBonty	Elizabeth	MS, Lecturer and Internship Coordinator	Animal and Food Sciences	EQM 101 (2), EQM 106 (1), EQM 205 (1), EQM 301 (1), EQM 302 (1), EQM 399 (3)
Lawrence	Laurie	PhD, Professor	Animal and Food Sciences	ASC 311 (1), ASC 389 (1)
Lawyer	Amy	MS, Equine Extension Associate, Part-Time Instructor	Animal and Food Sciences	ASC 310 (1)
Robertson, Jr.	Walt	JD, Attorney, Part-Time Instructor	Stites & Harbison, PLLC	AEC 325 (1)
Rossano	Mary	PhD, Associate Professor	Animal and Food Sciences	ASC 320 (2, +2 online), EQM 105 (5)
Stowe	C. Jill	PhD, Associate Professor, Director of Ag Equine Programs	Agricultural Economics	GEN 300 (1)
Urschel	Kristine	PhD, Associate Professor	Animal and Food Sciences	ASC 410G (2)
Wilson	Kristen	MS, Academic Coordinator, Part-Time Instructor	Equine Programs	GEN 109 (1), EQM 105 (1 lab section)

The table above provides some guidance on the personnel resources needed to teach the main courses in program, yet criteria used to identify relevant courses omit two core courses in the ESMA degree program. ASC 101 (taught by Dr. Bill Sylvia and Dr. Mary Rossano) and AEC 302 (taught by numerous Agricultural Economics faculty) are taken by all ESMA students, but our students do not constitute a sufficiently significant proportion of total enrollment in those classes to be included. However, it should be noted that with the expected number of incoming students for Fall 2014, approximately three sections per year of AEC 302 (which constitutes 50% of the sections offered annually) and about 40% of one lecture section (plus three to four lab sections) of ASC 101 are needed to accommodate our enrollment.

Two-page CV's for all of the above personnel are included in Appendix B. Course syllabi have been made available to Dr. Lisa Collins and are available upon request.

Attrition

Faculty involved in the ESMA degree program are passionate about and committed to their equine-related activities. There has been little attrition among faculty. In the past three years, four of the faculty members teaching in the ESMA degree program received tenure, so stability is predicted in those positions.

***Concern:** With the continued growth of the undergrad degree program, we are near the “breaking point” of being able to simultaneously provide a high-quality and hands-on education to our students with our current resource constraints. Faculty members take on additional sections of classes to accommodate our students in their already-full efforts; burn out and morale are an additional concern as we all continue to do more with less. The faculty who teach have a significant portion of their DOE in some other activity, such as research or extension (only one faculty member has a 100% teaching appointment). As a result, even if faculty are able to teach more sections to accommodate higher numbers of students, they must sacrifice other important areas in which they contribute to the College and University.*

Departmental TAs & RAs

There are no graduate students who serve as dedicated TAs in the ESMA degree program. However, a small army of undergraduate TAs is utilized for EQM 105; these TAs are vital to being able to offer enough sections to safely serve our large number of students. Other undergraduate TAs have served as assistants in other EQM courses periodically.

Faculty Honors and Recognition

- Elizabeth LaBonty – College of Education’s Teacher Who Made a Difference Award (2014)
- Mary Rossano – College of Education’s Teacher Who Made a Difference Award (2014)
- Bob Coleman – Gamma Sigma Delta’s Master Teacher Award (2008)

Undergraduate Research Activities & Initiatives

There are no formal undergrad research activities and initiatives, but undergraduate students have the opportunity to conduct research through a 3-credit research experience (usually in independent research courses through one of the participating academic departments, such as ASC 395 or AEC 580) or through a 3-credit internship (EQM 399). In spring 2014, one ESMA student conducted an independent research project as part of her Chellgren fellow requirements. Another ESMA student presented research from her

internship at the Gluck Equine Research Center at the National Conference on Undergraduate Research in April 2014 at the University of Kentucky.

A relatively new student organization is Research in Equine and Agricultural Disciplines (READ). READ aims to educate undergraduates about agricultural and equine-based research at UK and get them involved in projects, allowing them to network with other researchers and gain the skills necessary to go on to graduate school, vet school or other professional programs. At meetings, students are given the opportunity to present and discuss scientific articles. In addition, the club takes field trips to equine research departments and companies in Lexington and has lab days where students can learn lab techniques pertinent to research. In May 2014, this group hosted the Undergraduate Equine Research Symposium, which was attended by the Penn State Equine Research Team and the Ohio State Equine Research group. Participants had the opportunity to present independent research projects and hear from VDL and Gluck faculty.

Finally, three undergraduate students presented research projects at the Annual Midwestern Conference of Parasitologists in June 2014.

DOCUMENTATION OF IMPLEMENTATION OF POLICIES & PROCEDURES

Faculty members in the program adhere to the CAFE policies and procedures for curricular approval processes, advising, course equivalencies, and course substitutions. The EP DUS and CAFE student advising office cooperate on determining course equivalencies. Some students may receive credit towards graduation but not a specific course in the major. Curricular approvals for courses and programs are faculty-driven processes. Any changes to the ESMA curriculum are initiated by the members of the ESMA steering committee.

All changes or revisions go from the steering committee to the Undergraduate Curriculum Committee (UCC), except for courses taught at the 400G or 500 level, which are vetted by both the UCC and the Graduate Curriculum Committee. Membership on the committees is drawn from DUSs for the UCC, with service following a two-years-on, one-year-off rotation.

Academic advising of freshmen has recently been assigned to Academic Coordinator Kristen Wilson. Advising of upperclassmen and transfers is distributed among five (Camargo, Coleman, LaBonty, Rossano, Urschel) Animal and Food Sciences faculty. Prior to every advising session (fall, spring and summer) College- and University-wide information is disseminated through the Office of Academic Programs via faculty orientation programs. Program-specific information is collected by the ESMA DUS for dissemination directly to ESMA faculty advisors via email or in a face-to-face meeting, typically following consultation with the Academic Coordinator. The ESMA Academic Coordinator is also very well informed about the curriculum, helps to develop advising materials, and meets with students on an *ad hoc* basis and particularly when new students transfer into the program.

Concern: *Even with the addition of the Academic Coordinator and the new advising strategy, growing enrollment numbers have faculty advisors advising large (and sometimes growing) numbers of students.*

Course equivalencies are mostly administered automatically once they are pre-determined through decisions that have been carefully evaluated by content experts in the past. As a result, when a new student enters the

University, most transfer credits are automatically assigned as specific courses at UK. In cases where a course does not equate to an existing course, it is the student's responsibility to provide the course syllabus for evaluation to the College, where they will be compared to targeted courses for a fair determination of equivalency.

Course substitutions are handled in a similar manner when necessary. Circumstances under which such substitutions are permitted are limited and specific. For example, if a course is only taught once per year, and conflicts with another course a student needs to graduate, the student's request for a substitution would typically be granted. Such a request would need to follow procedure, which is that the student would fill out a course substitution form, providing a rationale for the substitution, and the form would be signed by the student and the student's advisor. Appropriate course substitutions include: course of a similar or greater depth, course of similar or higher rigor, and course more closely related to a student's specialty support interests. Reasons for rejection of a course substitution request include a course substitution form lacking a rationale, lacking an advisor's signature, or asking for a lower-level course to substitute for a higher level or more rigorous course.

Degree audits are conducted for all students in the College through the Office of Academic Programs by the Director of Academic Services, supported by the APEX software that keeps track of students' courses in alignment with their major.

ESMA courses, which can have either an EQM course prefix, a GEN course prefix, or the prefix of a department, are taught at regular intervals as shown in Appendix C. In addition, enrollment in those courses is also provided. In some cases, total enrollment is the sum of class enrollments in multiple sections.

ACADEMIC DEGREE PROGRAM DESCRIPTION

Program demand

Growth in enrollment has steadily increased since the degree became official in 2009. **In fact, preliminary numbers for fall 2014 enrollment suggest that, even in its mere five years of existence, the Equine Science and Management major is poised to be the largest major in CAFE.** In Table 6, ESMA student enrollment as measured in the fall semester is illustrated and is tracked beginning in 2007, when students were enrolled in "Individualized Studies" pending official approval of the program.



Table 6. Total student enrollment in the ESMA degree program, 2007-2014

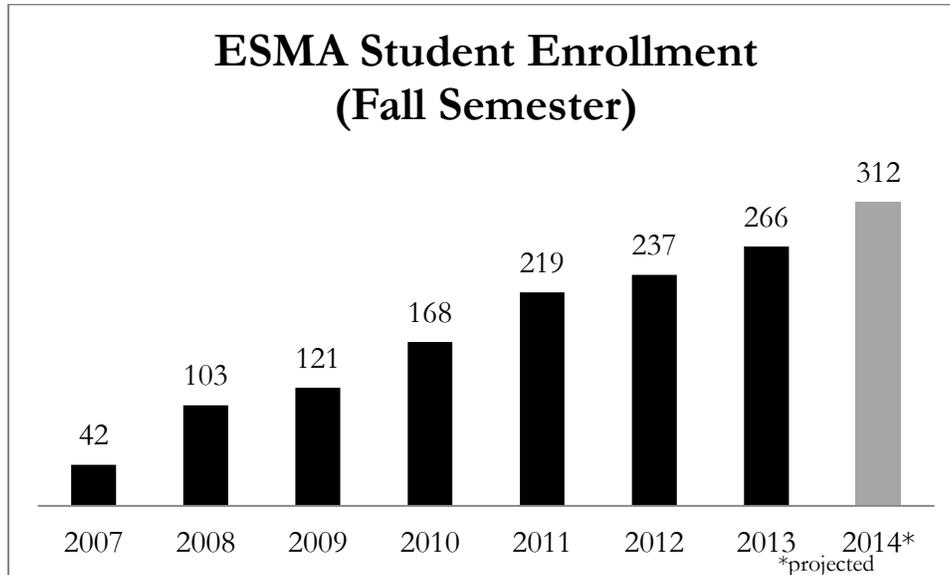
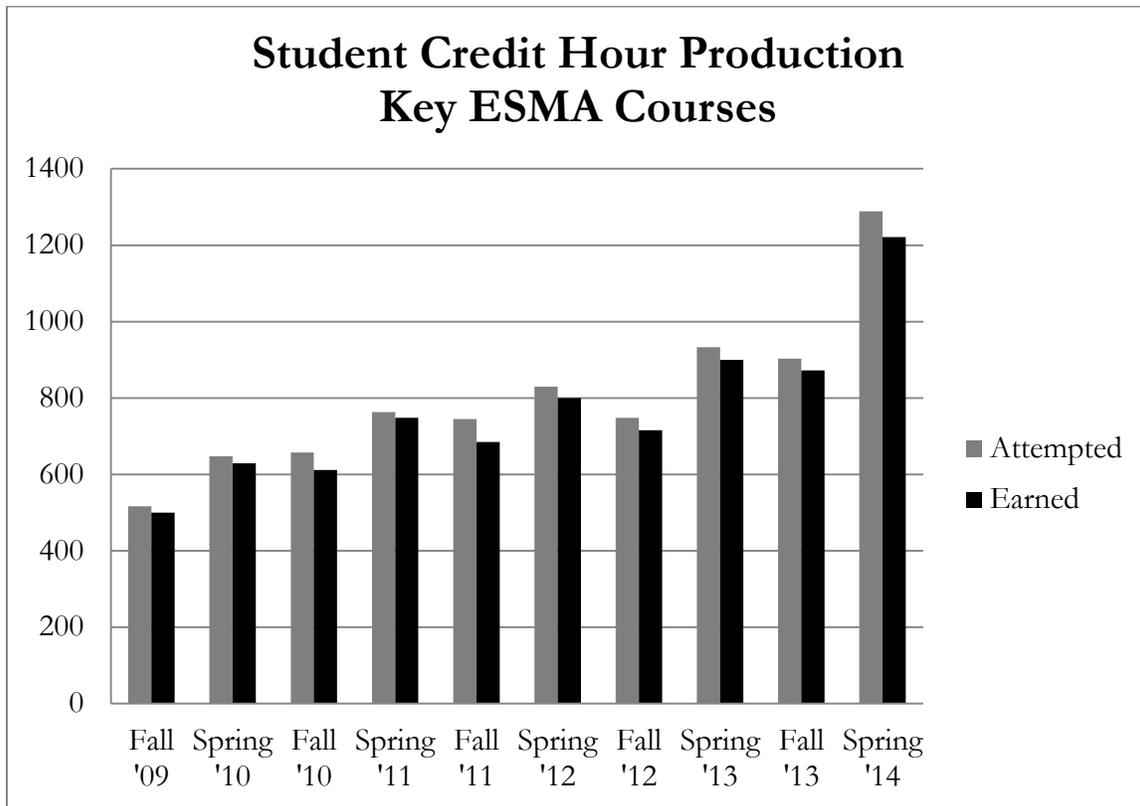


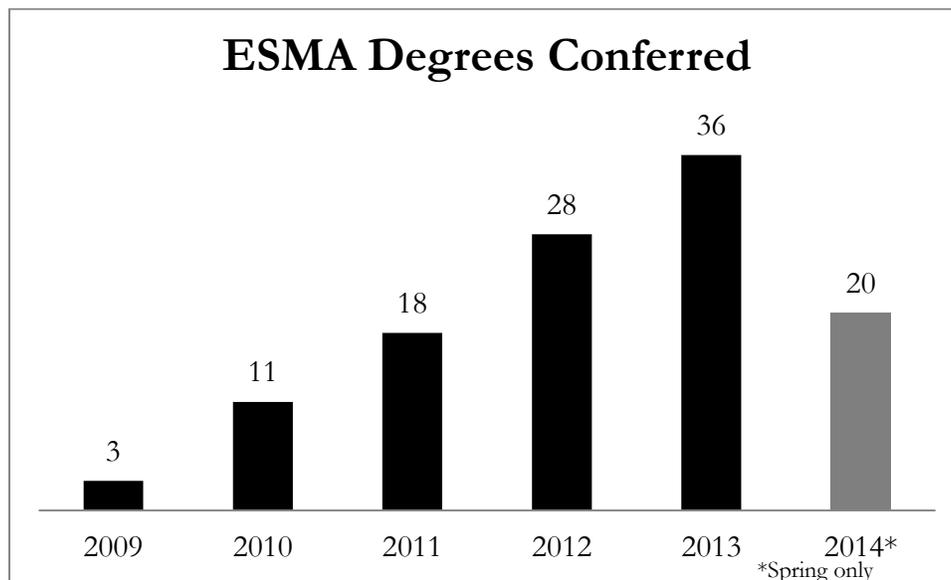
Table 7 illustrates student credit hour production, presented both in terms of hours attempted and hours earned, for the courses identified in the teaching personnel table. The rising trend is a result of growing enrollment as well as a greater number of course offerings. The spike in credit hours in spring 2014 is attributed to three factors: 1) an additional section of EQM 105 was offered; 2) two new courses were offered; and 3) EQM 351, typically a fall course, was also offered in the spring.

Table 7. Student credit hour product for key ESMA courses



Finally, the number of degrees conferred is presented in Table 8.

Table 8. ESMA degrees conferred, Fall 2009–Spring 2014



There are a number of Kentucky higher education institutions which offer equine-related education opportunities. These programs are identified in Table 9. Most of the programs offer credit for riding courses; one program includes only business offerings. The ESMA degree at UK consists of a rigorous curriculum in

order to train tomorrow’s leaders in the concepts of science and business which can be applied to the equine industry.

Table 9. Description of in-state equine-related education opportunities at higher education institutions

Institution	Description	Riding Courses for Credit
University of Kentucky UK Ag Equine Programs	Major in Equine Science and Management	N
Asbury University	Major in Equine Management (Management and/or Facilitated Mental Health) from Department of Health, Physical Education, and Recreation	Y
Georgetown College Equine Scholars Program	Students choose a traditional major but participate in extracurricular equine-related activities	N
Midway College	Major in Equine Studies (also offers a minor as well as an associate’s degree)	Y
Morehead State University	Major in Agricultural Sciences with an area of concentration in Equine Science	Y
Murray State University	Major in Animal Science with an Equine Science emphasis	Y
Bluegrass Community and Technical College North American Racing Academy	Associate’s degree in Equine Studies (horseman’s track and jockey’s track; also offers certificate and diploma options)	Y
University of Louisville Equine Business Program	Major in Equine Business (also offers a minor and a certificate)	N
Western Kentucky University	Major in Animal Science with an Equine emphasis	Y

Incidentally, these institutions constitute the “Kentucky Equine Higher Education Consortium.” Leading up to the 2010 Alltech FEI World Equestrian Games, Kentucky-based colleges and universities with equine-related academic opportunities formed this consortium as a means to present a unified front to the nation and world of, “Where else for an equine education?” Following WEG, the group also exhibited at several events, including the 2011 Quarter Horse Congress and 2011 National Horse Show. The group now attempts to meet annually to discuss recent changes and challenges in each institution’s respective programs. In addition, the group seeks ways to leverage strengths of each institution to the mutual benefit of equine education in Kentucky.

As budgets permit, the EP leadership continues to investigate ways in which industry experience can be shared with ESMA students. Numerous industry professionals serve as guest lectures in many different classes; however, some have expressed the desire to teach an entire class. Funding is needed to compensate individuals for teaching their own class. Conditional on aligning with our degree program, it would be beneficial to our students to take advantage of these opportunities. One equine law professional teaches a course in Equine Law, and it is immensely popular among our students. The recently-retired CFO of a large Kentucky Thoroughbred farm has been appointed as a part-time instructor and will teach a course in Equine

Investments in fall 2014. The location of UK in Central Kentucky puts many of the world's best in the industry at our backdoor, and our students can only benefit from learning directly from them.

Consortial Relations

The only formal relationship between the ESMA degree program and any other higher education institution is with the University of Louisville. Mr. Timothy Capps, faculty member and current director of UofL's Equine Business Program, teaches AEC 300, Equine Marketing, in the ESMA program. For two semesters, Dr. Bob Coleman traveled to UofL to teach a course in Equine Science. A number of our faculty guest lecture at other institutions, including Midway College, Morehead State University, Murray State University, and the Kentucky Horseshoeing School. In addition, our faculty have served on graduate committees at other consortium institutions.

A number of graduate students in equine-related programs help teaching courses for Locust Trace Agri-Science Farm, a technical high school in Lexington.

Finally, a formal partnership is in place with Lexington Catholic High School's Equine Academy; the MOU guarantees their students access to college-level courses (specifically EQM 101), mentorships, and research programs.

Program Uniqueness

The ESMA undergraduate degree program is one of only three standalone equine degree programs at a land-grant institution in the United States. And, as mentioned before, it is different from all other equine higher education programs in Kentucky. From a more comprehensive viewpoint, the larger Equine Programs is unique in its breadth in research and extension; this distinguishes the EP among its national counterparts.

Program Administration

The EP is led by a part-time director (who is also a faculty member) and reports to the Associate Dean for Research. The first two directors ultimately held a 20% of full-time position; the current director has a 50% appointment. The program also has an Associate Director (25% special appointment) who serves as Director of Undergraduate Studies, a Communications Director, and an Operations and Communications Coordinator. For the ESMA degree program, there are two positions in the Equine Programs: Lecturer and Internship Coordinator and Academic Coordinator.

There are two internal leadership committees. The EP Council meets monthly and is responsible for visionary leadership for all three missions of a land-grant institution. (Membership is listed in Table 2 above). The ESMA steering committee (listed in Table 3 above) meets periodically and is responsible for dealing with programmatic issues as they relate to the undergraduate degree program.

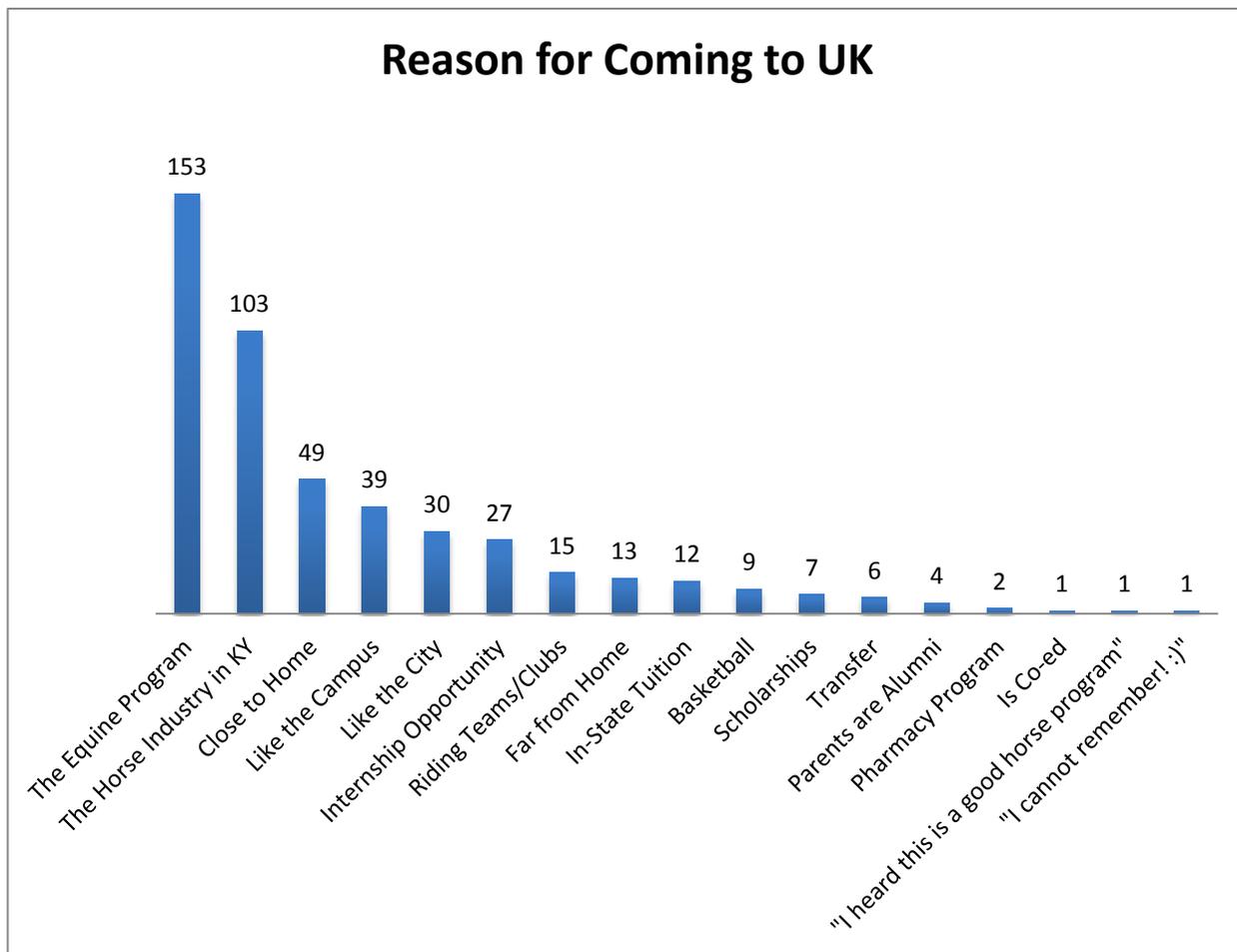
Recruitment and Development Plan

As was illustrated earlier, the ESMA degree program is growing rapidly. Prospective students are frequently met at industry events where Equine Programs has a presence, such as the Rolex Kentucky Three-Day Event and, for the first time this year, at the American Quarter Horse Association's Youth World Show College Fair. Opportunities to engage excellent prospective students are pursued as resources allow. The Director of

Undergraduate Studies and Academic Coordinator work closely with Jason Headrick, Director of Student Relations for CAFE, conducting more than 100 one-on-one equine prospective student visits per year. In addition, they provide program information at CAFE-hosted events for high school students/prospective students on and off campus.

In recruiting and retaining students, it is helpful to know what attracts ESMA majors to UK. During their first semester at UK, equine students complete a demographic survey. One open-ended question asks students to identify the reason(s) they chose to attend UK. Data from 2011-2013 suggest the following reasons (some students identified multiple reasons), which are summarized in Table 10.

Table 10. First-semester ESMA students' reasons for attending UK



There has been little turnover in faculty, and positions created as part of EP remain filled. Thus, there has been little activity in recruiting new faculty, although efforts continue to reach out to College and University colleagues who may be interested in participating in the ESMA degree program as well as EP.

Still, with growing enrollment, there are increasing constraints on physical capacity and faculty teaching time, and being able to deliver a high-quality program to larger numbers of students is a concern. Up to this point, departments have exhibited shared ownership of the program (and its costs); there is some concern that this may change under the new budget model being implemented by UK. There are also concerns that under the new budget model, department chairs may guard faculty time more carefully, especially when faculty are

teaching courses without the department prefix. This is despite reassurances from different administrative levels that interdisciplinary programs will be supported. An additional concern regarding faculty retention is that, as the program numbers grow, our capacity for teaching enough sections of required courses becomes increasingly stretched. There is no sense of where those faculty members would come from. Maintaining communication with the Dean of CAFE is necessary in order to maintain program visibility and attention on the need for faculty commitments and financial support to the EP program.

Program Delivery

Currently, none of the courses for majors are offered online. Some students satisfy some of their pre-major requirements by taking core courses at area colleges. The majority of classes are offered during regular hours; however, there are also evening offerings.

PROGRAM QUALITY AND STUDENT SUCCESS

Student Learning Outcomes Assessment

The student learning outcomes identified for the ESMA undergraduate program during its initial development include the following:

- A. Students will demonstrate knowledge of scientific principles and the application of those principles to equine 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 the equine industry.
- D. Students will effectively acquire, assimilate, analyze, and report scientific information.
- E. Students will demonstrate the ability to work effectively in team environments.

A small team of faculty and staff members have developed a number of evaluation tools to help assess the student learning outcomes listed above. These tools are included in Appendix D.

Assessment Tools Developed & Utilized

- Basic Knowledge Assessment – Equine students are given a basic equine knowledge assessment each fall semester in EQM 101: Intro to Horses & Horse Industry. This assessment tool is made up of 30 questions developed by the American Registry of Professional Animal Scientists (ARPAS). These questions were selected from a bank of 500 multiple choice questions that cover the content, but were not written by those who taught the material. The same assessment tool is given in EQM 490: ESMA Capstone each fall and spring semester. This course is taken during the student's senior year in the program.
- Critical Thinking Skills Test – Equine students enrolled in ASC 101: Domestic Animal Biology (a required freshman-level course in the EMSA major) are given the California Critical Thinking Skills Test to assess their critical thinking skills. The same assessment tool is given in EQM 490: ESMA Capstone each fall and spring semester. This course is taken during the student's senior year in the

program. *(Not included in appendix as it is proprietary.)*

- Demographic Surveys – Equine students are given two demographic surveys their first fall semester at UK. One survey is given in ASC 101: Domestic Animal Biology and collects demographic information and previous experience with animals and agricultural subjects. The second survey is given in EQM 101: Intro to the Horse and Horse Industry and asks the students why they came to UK, future career aspirations, and their experience/background with horses.
- Teamwork Survey – This assessment was developed to utilize in courses that require a team project. The six-question tool asks students to 1) rate each individual team member's overall contributions to the project; 2) list what each team member was responsible for; 3) share their ideas for what made the project successful and what could have been improved upon; and 4) rate the degree to which they agreed or disagreed with a list of teamwork concepts.
- Internship Survey – Host sites/supervisors for the internship are asked to complete an evaluation on the student in regards to their work experience with them. The evaluation asks for input on the overall experience, attitude, and reliability of the interns, as well as skills learned during the experience.
- Graduation Exit Survey – Upon completion of the program, graduates are sent an electronic survey asking them for demographic information, future plans, to rate the quality of the instruction they received at UK and their academic advising experience, skills learned while enrolled in our program, and areas of improvement for the undergraduate program.

Assessment data collection began in spring 2012; because of this, there are no students for whom we have been able to collect entering and exiting information. As data are collected, we will continue to refine and adapt our assessment tools.

External Awards or Other Recognition of the Students

We currently do not have an efficient tracking mechanism for such accomplishments, but personal communication with students, input from advisors, and a review of the past Wildcat Canter e-newsletters identifies the following awards of which we are aware:

- Hallie Hardy – Darley Flying Start (2014)
- Colton Woods – Legacy of Legends Scholarship (2013)
- Natalie Heitz – Darley Flying Start (2012)
- Jillian Gordon – Rood & Riddle Equine Hospital scholarship (2011, 2012)
- Jennifer Brogie – Ted Bassett Leadership Award (2012)
- Virginia Stilwell – Rood & Riddle Equine Hospital scholarship (2011)
- Jennifer Brogie – Rood & Riddle Equine Hospital scholarship (2010)
- Kate (Benner) Hardy – Darley Flying Start (2010)
- Lindsay Good – Rood & Riddle Equine Hospital scholarship (2009)

- Gus Koch – Excellence in Agricultural Literacy and/or Communications Award, National Agricultural Ambassadors Conference (2008)

Six-Year Graduation Rate

With the ESMA degree program officially beginning in fall 2009, no six-year graduation rate is available. However, even though these measures are rough, we examine the outcomes of students enrolled as freshmen in the incoming classes of fall 2009 and fall 2010 and present the information in Table 11.

Table 11. Outcomes of freshmen entering the ESMA degree program in fall '09 and fall '10

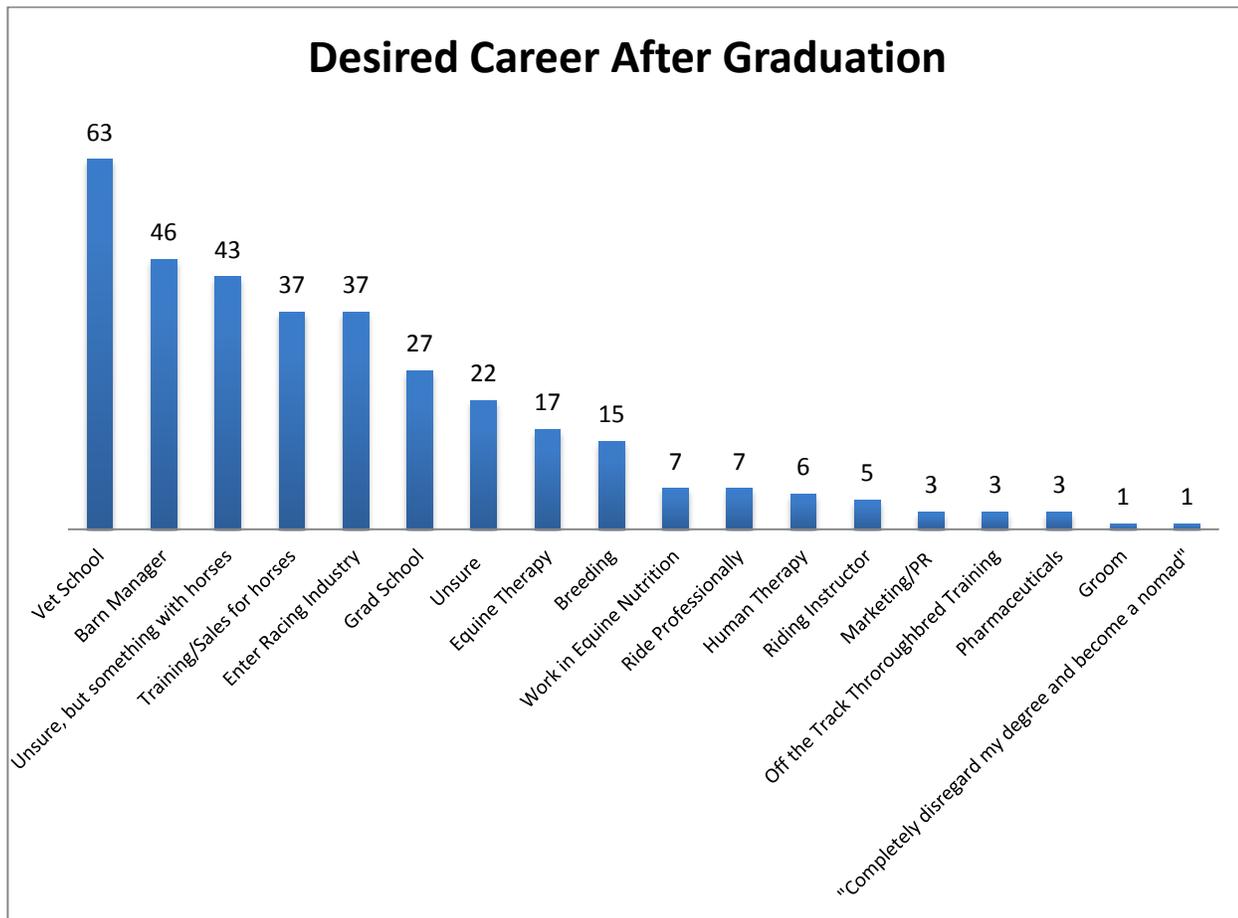
	Number of students	Graduated with ESMA degree	Still enrolled in ESMA	Left UK as an EMSA major	Switched majors, graduated	Switched majors, still enrolled	Switched majors, left UK
Fall '09	20	10	2	4	2	0	2
Fall '10	44	12	7	16	4	4	1

Job Placement for Undergraduate Students

Equine students are asked to complete a demographic survey their first fall semester in the program. In this survey, students are asked about their career aspirations in the future. Data collected in 2011, 2012, and 2013 showed that students were interested in the following careers presented in Table 12.



Table 12. First-semester students' desired careers

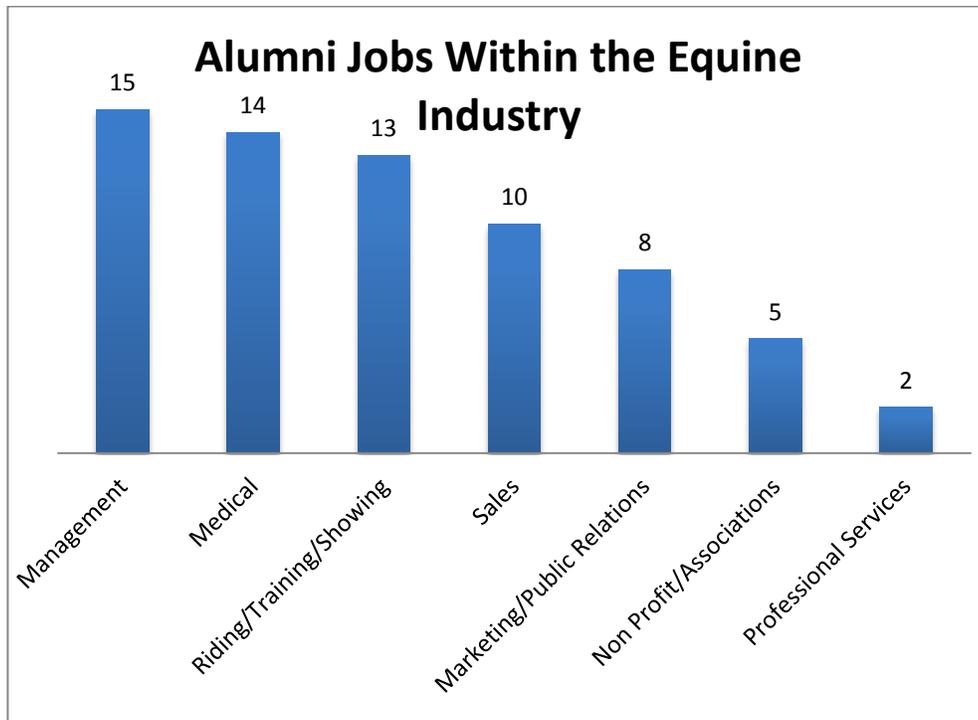


As a new program, we are just beginning to track job placements of ESMA graduates. Sources for this information include the graduation exit survey, updates from academic advisors, and updates from alumni through self-reports. As of July 2014, we have been able to get updates on 88 of the 116 graduates, and of those:

- 76% are employed within the equine industry
- 19% have gone onto additional schooling including, but not limited to, graduate/professional school, vet school, and the Darley Flying Start Program
- 5% are employed, but not within the equine industry

Of the graduates employed in the equine industry, a variety of careers have been obtained, spanning a large spectrum of the equine industry. The data has been compiled into categories and are depicted in Table 13.

Table 13. Alumni employment in equine industry



Processes Used to Ensure Currency of Curriculum

Even though the ESMA degree program is quite new, it has already undergone its first formal curriculum revision. Keeping the curriculum current to produce the most employable students is achieved by utilizing input from industry stakeholders, faculty and staff, and graduates. Our industry stakeholders provide important feedback about the applicability of our degree program. The Equine Programs Advisory Committee to the Dean meets twice a year; they are engaged in the continued development of the undergraduate degree program and help provide direction on keeping the program current. In addition, faculty and staff members are involved in the industry in diverse ways, and those interactions help provide new ideas for the program. Finally, graduate exit surveys are sent to program graduates shortly after graduating; they are asked to identify areas of improvement for the undergraduate degree program.

Quality and Effectiveness of Orientation and Advising

The addition of an Academic Coordinator to the ESMA program in January 2013 greatly enhanced the advising capacity within the program. Traditionally, students of all classifications were advised solely by equine faculty advisors. Starting with the summer 2013 advising conferences, a new advising plan was implemented and included the following:

- All equine faculty advisors and the Academic Coordinator will participate in summer advising conferences for freshmen, transfer, and readmit students as individual schedules permit.
- The Academic Coordinator will be assigned all incoming freshmen to advise for the fall and spring semesters of their freshmen year. During this time, the following will be completed:
 - Student file set up (to include: advising sheet – hard copy and electronic, photo, and four-year plan)

- Four-year plan preparation and appointment
- Faculty advisors will be assigned new advisees for sophomore year fall semester advising and will advise through graduation.
- Transfer, major-switch, and re-admitted students are assigned to equine faculty advisors. (Note: Students switching their major freshmen year are assigned to the Academic Coordinator.)
- Advisee numbers for each advisor will be assessed each semester.

The new advising plan has only been in place for one academic year and transition of freshmen from the Academic Coordinator to faculty advisors will occur in the fall 2014 semester. To date, the revised plan is working well and has resulted in several new advising resources being developed. These new resources include: electronic advising program sheets for each emphasis area, a four-year plan grid and list of courses including the course name, semester offered, and pre-requisites required for students to utilize during four-year planning, and a student information sheet to collect demographic and major/minor information for their student file. In addition, an Advising Syllabus that includes resources to help students better understand the advising process for our program has been created and will be used with students in the fall 2014 semester.

Very limited data on the effectiveness of advising and assessment of areas in which we could improve has been collected. In spring 2013, we started collecting data through the Graduation Exit Survey sent to each student that had graduated from the program. To date, 30 surveys have been completed and when asked to rate the student's overall guidance they received from their advisor concerning their future and plan of study while at UK, graduates rated the advisors with an average of 4.1 out of 5 (4=very good; 5=outstanding). Detailed comments from graduates are available upon request.

Instruction

The ESMA curriculum recently underwent its first revision, with the new curriculum being approved in May 2014. Incoming students in fall 2014 will now have the opportunity to choose from among four areas of emphasis (Equine Science, Equine Business, Community Leadership and Development, and Forages & Pastures) rather than choosing between two options (Science or Management). Students must complete at least one area of emphasis, which requires nine credit hours. Students then must take an additional 12 credit hours in other approved courses and have an opportunity to complete a second area of emphasis in doing so. Old and new major sheets are included in Appendix E.

Teaching effectiveness is measured in a number of ways. Course evaluations are one tool, but the program is continually searching for more meaningful measures of effectiveness. For example, achievement of student learning outcomes should be a measure of effectiveness. We are in the process of devising appropriate ways to assess those outcomes. Faculty members' home departments provide teacher/mentor opportunities, but we can re-strategize as the effectiveness of student learning outcomes is assessed.

Class Size and faculty nucleus for program instruction

The teaching nucleus for the ESMA degree program is identified in Table 5. The number of students enrolled in each course (which may contain multiple sections) is identified in Appendix C.

Instructional Equipment

At Maine Chance Equine Campus (Animal Science) there are two round pens, tack for the training class, grooming equipment, stethoscopes, and thermometers for teaching how to assess vital signs, and supplies for teaching first aid.

Anatomy mounts and lab equipment for dissections are available for ASC 310, Equine Anatomy. Buses are used for field trips, but the size of the buses limits enrollment capacity of the lab sections. The University recently purchased new buses, and these buses had fewer seats than the old ones, thereby limiting enrollment even further.

A computer lab in the Barnhart Building is utilized for one of the core courses, AEC 302 (Agricultural Farm Management). The computer lab was recently expanded to accommodate 32 rather than 28 students, yet this course is still a major bottleneck for a number of degree programs.

Faculty credentialing to support core/elective course offering

When non-teaching employees or industry professionals are utilized to teach electives, all University procedures to formally appoint them as part-time instructors (PTIs) are followed.

Internship/independent studies/co-curricular

The National Society for Experiential Learning defines an internship as a carefully monitored work or volunteer experience in which an individual has intentional learning goals and reflects actively on what he or she is learning through the experience. Simply put, an internship is on-site work experience related to a student's career goals or field of interest that is supervised, professional, educational, and evaluated. All ESMA students are required to complete an internship before graduating. These internships may be done after the student has completed 60 credit hours of course work (junior standing) and has completed the following courses: EQM 101, EQM 105, ASC 310, and ASC 320.

Internships must be related to the industry, have clearly-stated learning objectives, and consist of more than just routine, repetitive tasks. Students in the EQSM program at UK have completed internships from Wyoming to New York and all across Kentucky. Two international internships have been completed. Students have worked in equine hospitals, on racetracks, and in offices. Internships have varied from positions on breeding farms and in training barns, to helping put on equine-related events. Students have worked with numerous breeds and across disciplines while completing their EQM 399 requirement.

As of July 2014, 198 internships have been completed and 17 are currently in progress during summer 2014.

Program qualifications/standards for incoming students, program admission.

Students interested in applying to be part of the ESMA undergraduate program must meet minimum standards and qualifications as set by UK and CAFE. At this time, there are no program-specific qualifications/standards.

PROGRAM RESOURCES

Cost and Funding of Program

Determining the cost of interdisciplinary programs such as EP is difficult since salaries for most of the affiliated faculty and staff are paid for in their home departments. The College covers the salaries of the Communications Director, Lecturer and Internship Coordinator, Academic Coordinator, part of the Operations and Communications Coordinator, and half of the Director's salary. In addition, the Director's stipend is paid through an endowment in the College.

The EP receives \$50,000 in recurring funds annually to cover expenses related to communications, the internship program, student and alumni relations, and needs of the office. In addition, the program receives \$9,500 in federal funds. The EP receives an annual installment of \$60,000 from the Council of Postsecondary education, which is restricted to expenditures on capital projects related to undergraduate education.

Externally, the EP receives annual gifts from Rood & Riddle Equine Hospital to support clubs and teams activities as well as a student scholarship. In addition, Hagyard Equine Medical Institute has sponsored six of the past seven Distinguished Industry Lecture Series events.

Apart from personnel, one of the major costs of running the ESMA degree program is the horse herd at Maine Chance Equine Campus. Currently, the department of Animal and Food Science covers the entire cost of the horse unit. If funds are distributed to EP as part of the new budget model, one would expect that EP would also be responsible for proportionally covering the costs of the horses used in the teaching program.

Facilities

Most of the courses in the ESMA degree program are housed at the southern end of UK's campus and include the Gluck Equine Research Center, Garrigus, Barnhart, and Ag Science Center buildings. One of the biggest challenges with the growing enrollment of the ESMA degree program is the classroom constraints on campus. Recent "improvements" to classrooms in the Ag North building have *reduced* the number of seats available. Enrollment in Equine Anatomy (ASC 310) is constrained by the lab space in AgN-N11. There are two classrooms in CAFE which can accommodate more than 50 students: 1) AgN-A7, is poorly-designed and is a disservice to both students and faculty which teach in that room; 2) B52 located in Garrigus. Courses in the ESMA program must compete with others in the College that also need large classrooms.

Concern: *Classroom constraints extend beyond the ESMA courses, being present college- and university-wide, and are beyond our control. However, we feel obligated to accommodate the students in our major courses in a timely manner. With the current facilities, we are unable to do so.*

Off-campus facilities are located at UK's Maine Chance Equine Campus, which sits on what researchers in the College of Agriculture, Food and Environment collectively call "North Farm." The education and research cluster sits on the former site of the Maine Chance Farm while the Health Research Cluster is located primarily on the former Spindletop Farm. Facilities used in the ESMA degree program (whether for class, internships, or independent research projects) are described below.

Equine Education and Research Cluster

The Department of Animal and Food Sciences at UK operates a 100+ acre horse unit for teaching and research. The horse unit is located about six miles from the UK campus on a portion of Maine Chance Farm in northern Fayette County. Maine Chance Farm was purchased by the University of Kentucky in the 1960's and it is currently an important part of the Kentucky Agricultural Experiment Station. In addition to the horse unit operated by the Department of Animal and Food Sciences, many other agriculturally-related research programs are located at Maine Chance Farm and its neighboring farm, Spindletop.

The horse unit operated by the Department of Animal and Food Sciences and managed by Bryan Cassill includes several barns and more than 25 pastures/paddocks of various sizes. The farm routinely maintains about 100 horses, depending upon season and research needs. The farm is operated by three full-time staff and a number of student workers.

Teaching Pavilion

The most recent addition to the farm is a large teaching pavilion that can be used for on-farm teaching activities or other events. The lab sections of EQM 105 take place under the teaching pavilion. The pavilion is not climate-controlled but provides a protected environment for student learning of horse handling and management practices and conformation evaluation. In addition, the pavilion is sometimes used for extension and outreach activities.

Students are responsible for their own transportation to and from the teaching pavilion. There are no restroom facilities on site. (This limits the use of the pavilion for other purposes, such as continuing education programs and outreach activities.)

The nutrition barn

The nutrition barn contains 12 partially-covered, individual pens. Each pen is 12 feet wide and 48 feet long and is equipped with an automatic waterer. The pens easily accommodate mature horses, growing horses and mare/foal pairs. The Nutrition Barn is used for feeding individual horses without imposing box stall confinement. It is well-suited to studying the effects of dietary changes on growing horses, exercising horses and broodmares. The Nutrition Barn is adjacent to a 60-foot round pen and six-horse euro-style exerciser.

Barn 3

Barn 3 was one of the original barns on Maine Chance Farm and houses the horses used in EQM 105. It includes a feed room, a small laboratory, and a restraint stock. Six stalls in the Training Barn are equipped with automatic grain feeders and have rubber mat flooring. These stalls are useful for studies on digestibility, palatability and feeding behavior.

Barn 5

This barn was recently remodeled and contains 10 large box stalls with rubber-mat floors that are excellent for a variety of research needs. The barn also includes two feed/equipment rooms, two stocks and a large laboratory/work area. This barn can be used to house mares and foals, yearlings or mature horses.

The Main Barn

The Main Barn area includes two separate structures. The bigger barn has seven large foaling stalls, a breeding shed, a feed room and an office. The smaller barn has four box stalls. The Main Barn area is adjacent to 12 paddocks of various sizes. Several of the paddocks have run-in sheds. The Main Barn is used in ASC 410G to some extent and is also a location where many students complete their internship. The breeding dummy in the Main Barn was paid for by funds from KEEP.

Animal Resources

The core herd consists of eight to 12 mature geldings (primarily thoroughbreds), 25-30 Thoroughbred broodmares, their foals, and one Quarter Horse stallion. UK does not operate a riding program, and all horses are maintained for research and teaching purposes. Foals produced on the farm are progeny of area stallions. Foals are sold as weanlings or yearlings through public auction or private sale and are an important source of income for recurring costs on the farm (feed, health care, maintenance, etc.).

Equine Health Research Cluster

Equine health research is conducted at UK's Maine Chance Equine Campus, and from time to time, undergraduate students are involved in research projects. Located off of Newtown Pike in Lexington, the main area of the farm utilized for primarily Veterinary Science research is Spindletop Hall. This portion of the farm is not open to the public. More than 400 horses are housed on this portion of the farm.

The mare facility, now known as the Dr. Walter W. Zent Mare Reproductive Health Facility, and the stallion and semen facility are both used for a small portion of ASC 410G.

Equipment

Most of the equipment exists either on Maine Chance Farm or in the faculty member's home department lab. The Equine Programs has access to the college IT staff.

Personnel Summary

In addition to the faculty identified earlier, a number of staff positions help support the ESMA degree program. Like faculty, most hold their primary appointment in an academic department. These individuals are identified in Table 14.

Table 14. Key staff positions supporting the ESMA degree program.

Last Name	First Name	Affiliation	Role
Cassill	Bryan	Animal and Food Sciences	Horse Unit Manager
Harper	Alexandra	Equine Programs	Operations and Communications Coordinator
Hicks	Marci	College of Agriculture, Food, and Environment	Development
Lawyer	Amy	Animal and Food Sciences	Equine Extension Associate, Teaching
Wiemers	Holly	Equine Programs	Communications Director
Wilson	Kristen	Equine Programs	Academic Coordinator, Teaching

Support from Other Units

EP likely would not exist without the generous support it receives from a number of departments. As with other multidisciplinary programs, faculty have their primary appointment in other departments, and department chairs play an important role in continuing this relationship. Other college-level units, including the research office and development office, provide valuable support to the Equine Programs.

INPUT FROM AFFECTED CONSTITUENTS

After the arrival of the Academic Coordinator in January 2013, a short interview was conducted with a small population of faculty, staff, and students within the ESMA program. Individual students were identified by advisors and were interviewed on-on-one. In addition, both sections of EQM 490: ESMA Capstone in spring 2013 were interviewed as a group during class. During this interview process, participants were asked about the program strengths and areas for improvement as well as ideas of how the Academic Coordinator could best support them.

Strengths of the ESMA program identified by faculty included the great diversity in the course work the students can take, the breadth of knowledge and expertise available, the support from the College administration, and being located in the “Horse Capital of the World.”

Strengths identified by students included the expertise of professors, the program’s reputation, internship and networking opportunities, and proximity to diverse segments of the equine industry.

Areas of improvement identified by faculty include that not all students realize the program is science-based, more support is needed within the classroom (such as lab space, facilities, and TAs), students are not able to get into the courses needed due to the fast pace of growth of the program, new courses could be added, especially business-related courses, would like to see students take more advantage of the extracurricular activities offered, and would like to see some unengaged faculty become more involved.

Areas of improvement identified by students include having access to a broader set of courses, with many suggestions indicating demand for more hands-on courses as well as breed or discipline specific courses. In regards to the overall program, students requested improvement in advising tools and more support for transfer students. In addition, offering more flexible course schedules, having more interaction with other colleges, and offering more challenging courses were identified.

OPERATIONS

The EP office meets roughly every two weeks to share information about upcoming events, office logistics, and program details. The first retreat for EP staff was held Jan. 31, 2014. The purpose of this retreat was to define the mission of the EP office, which is the front door for everything equine at UK. Other committees meet as needed. A regular college-wide forum is held the 4th Friday of every month (except June). The purpose is to disseminate information about the College’s and University’s equine-related activities. The EP Council also meets monthly immediately following the Equine Forum. Finally, the Dean’s external advisory committee meets twice a year (usually June and September).

OTHER AREAS

Quality Enhancement Plan

A goal of UK's Quality Enhancement Program (QEP) is to improve student's presentation skills through integration of oral, written, and visual communication skills. The ESMA program contributes to this goal by requiring several courses which integrate communication across the curriculum, going beyond the general education level of Composition and Communication I and II. The new graduation composition and communication requirement (GCCR), will further enhance this objective. The ESMA undergraduate program has incorporated the new GCCR requirements into the EQM 490: ESMA Capstone course taken by seniors in the program.

For example, one course in which contributes to the QEP is EQM 399, the required student internship. In addition to completing the internship, students are required to write a three to five-page reflective paper on their experience. In EQM 105, Horse Handling and Behavior, students keep weekly blog journals on the progress of their training. In the new Facility Design and Management class, students present a business plan on a new equine facility. Lastly, the Capstone course (EQM 490) is an opportunity to bring together knowledge and skills gained in previous courses to propose solutions to a current issue in the equine industry. The students deliver oral presentations at the end of the semester and further develop written skills by contributing to the written report.

University Diversity Plan

The University's Diversity Plan includes ethnicity, race, disability, and gender when defining diversity of the student body and work force. EP will continue to seek ways to improve the program's diversity. The tables below attempt to define some of the many ways to assess diversity among the ESMA majors for students enrolled in the fall semesters between 2009 and 2013. In Table 15, summary statistics include total enrollment, average age of students enrolled (in years), percent of female students, percent of out-of-state students, and percent of international students. Quality of incoming students is measured by average high school GPA (on a 4.0 scale) as well as average ACT and SAT scores. Finally, other measures of note include percent of students receiving a Pell Grant, percent of students who are NCAA athletes at UK, percent of first generation college students, and percent of students who transferred into the program (either from UK or from a different institution).

Table 15. Characteristics of ESMA majors enrolled in fall semesters

	Total Enrollment	Age	% Female	% Out-of-State	% International	High School GPA	ACT	SAT	% Receiving Pell Grant	% Athlete	% First Generation	% Transfer
Fall '09	112	25.2	81.3%	55.4%	1.8%	3.15	24.9	1083.6	17.0%	0.0%	3.6%	14.3%
Fall '10	168	24.3	82.7%	56.5%	2.4%	3.16	24.5	1075.6	20.8%	0.6%	7.1%	20.2%
Fall '11	222	23.4	84.7%	61.7%	1.8%	3.24	24.8	1083.0	21.6%	0.5%	9.0%	15.8%
Fall '12	242	22.1	84.3%	72.3%	2.5%	3.34	25.2	1090.7	24.0%	0.8%	9.9%	18.6%
Fall '13	267	21.1	84.3%	74.5%	2.6%	3.43	25.2	1094.8	23.2%	1.1%	11.2%	19.1%

In Table 16, distribution of ESMA majors by ethnicity is reported.

Table 16. Distribution of ethnicity among ESMA majors enrolled in fall semesters

Ethnicity										
	American Indian	Asian	Asian, Asian American or Pacific Islander	Black or African American	Decline to Respond	Hispanic or Latino	Multi-Racial (two or more races)	Other	Unknown	White or Caucasian
Fall '09	0.9%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.9%	2.7%	94.6%
Fall '10	0.0%	0.0%	0.6%	0.0%	2.4%	3.0%	1.2%	0.0%	1.8%	91.1%
Fall '11	0.0%	0.5%	0.5%	0.5%	0.9%	3.2%	1.8%	0.0%	1.8%	91.0%
Fall '12	0.0%	0.4%	0.4%	0.4%	0.8%	2.5%	1.7%	0.0%	2.1%	91.7%
Fall '13	0.0%	0.4%	0.4%	1.5%	1.1%	2.6%	2.6%	0.0%	2.6%	88.8%

As we reflect on this program, we are making plans to increase our communication with the Office of Diversity by sending its personnel our newsletters and other materials as created, maintaining stronger lines of communication aimed at keeping them aware of the EP and ESMA degree program.

OTHER STUDENT OPPORTUNITIES

Events

A number of events providing students networking and career development opportunities are held throughout the course of the year.

The **ESMA Program Reception** is held yearly and is an opportunity to celebrate the important contribution that the equine industry makes to our students by hosting internships, acting as guest speakers in classes, and supporting the program in a multitude of ways.

The **Welcome Back BBQ** provides an opportunity for new ESMA students to network with current students, learn more about the equine-related clubs and teams, and interact with faculty in a fun environment.

The **EP Career Fair** provides college equine students a hands-on opportunity in event planning as well as opportunities for equine students to network with future employers in the industry. This event attracts not only ESMA students, but also many college students from other states.

The **Distinguished Industry Lecture Series** is a recurring event which gives students an opportunity to learn from some of the industry's most distinguished contributors and engage important industry individuals

with EP. Past speakers include Nick Nicholson, Nina Bonnie, Ted Bassett, Jerry and Ann Moss, Reed Kessler, Graham Motion, and Buck Davidson.

ESMA Graduation Receptions are held in May and December of each year to recognize the program's graduates in a more intimate setting and celebrate with the graduates' families.

Clubs and Teams

There are a number of extracurricular opportunities for students to be involved in riding teams or other horse-related opportunities. These university-approved clubs are housed in the College of Agriculture, Food and Environment. While the clubs and teams are not formally under the purview of the EP, faculty advisors for these groups are all closely associated with EP. Members of these teams come from across the College and University and are not necessarily ESMA majors. In alphabetical order, these groups are: Dressage and Eventing Team (faculty advisor: Dr. Jill Stowe); Equestrian Team (faculty advisor: Dr. Bob Coleman); Horse Racing Club (faculty advisor: Dr. Laurie Lawrence); Polo Team (faculty advisor: Dr. Roger Brown); READ Club (faculty advisor: Kristine Urschel); Rodeo Team (faculty advisor: Elizabeth LaBonty); and Saddle Seat Team (faculty advisor: Dr. Mary Rossano). A more detailed information sheet for clubs and teams is included in Appendix F.

RESEARCH AND EXTENSION

Research

One of the EP's key strengths is the astounding breadth of equine-related research that occurs in the College of Agriculture, Food and Environment. All of this research occurs as part of the faculty member's position in his or her home department; the EP does not have a formal research program of its own. However, the presence of the EP has made possible new multidisciplinary research endeavors through awareness and networking. Areas of research represented within the UK EP include economics, entomology, environmental stewardship, genetics and genomics, the horse-human connection, immunology, infectious diseases, musculoskeletal science, nutrition, parasitology, pasture management, pharmacology/toxicology, and reproductive health.

One important collaboration of note includes the nation's first USDA-ARS program with an approved mission including equine research, which is a breakthrough in former USDA policies excluding horses.

Although many of these research programs are pre-existing, the EP helped make possible a recent large multidisciplinary study culminated in the release of the 2012 Kentucky Equine Survey, which was a project aimed at quantifying the number and use of all horses, ponies, mules, and donkeys in the state as well as the economic impact of the equine industry on the state. This is the first time in 35 years that a comprehensive study of this nature has been conducted, and it is expected that the results will influence decision making for individuals, business owners and entrepreneurs, community planners, veterinarians, and elected officials.

Extension

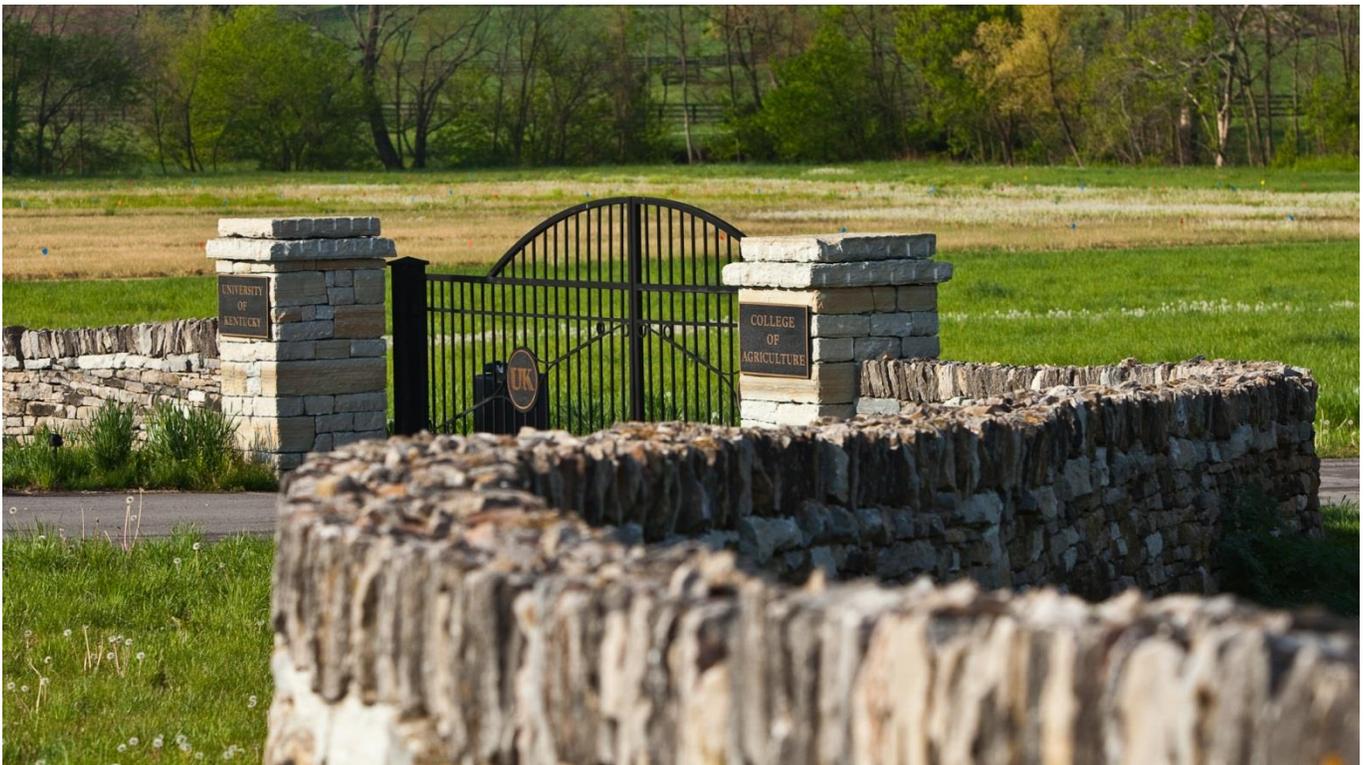
Again, most equine-related outreach occurs as part of faculty and staff members' positions in their home departments. However, the EP assists by helping communicate and organize some of these events. A rich set of outreach programs are available, including both adult and youth extension programming. Adult extension

programs include Horse College and various equine field days. Youth extension programs are centered on Kentucky 4-H Horse Program activities.

In addition to more standard extension programming, diagnostic services are offered by UK's Veterinary Diagnostic Laboratory (VDL)

It is worthwhile mentioning certain outreach tools which were established as part of the Equine Programs. The Farm and Facilities Expo (also known as Equine Field Day), the Horse Pasture Evaluation Program, the UK Equine Research Showcase, and the award-winning *Bluegrass Equine Digest* e-newsletter are all products of the collaboration between multiple units as part of the Equine Programs.

Finally, the EP Office produces the *Wildcat Canter*, a monthly newsletter about equine happenings at UK specifically geared toward students. The EP maintains a website presence, and various EP groups are active on social media, including Facebook, LinkedIn, and Twitter.



Appendices



**Equine Science and Management
Undergraduate Degree Program
College of Agriculture, Food and Environment**

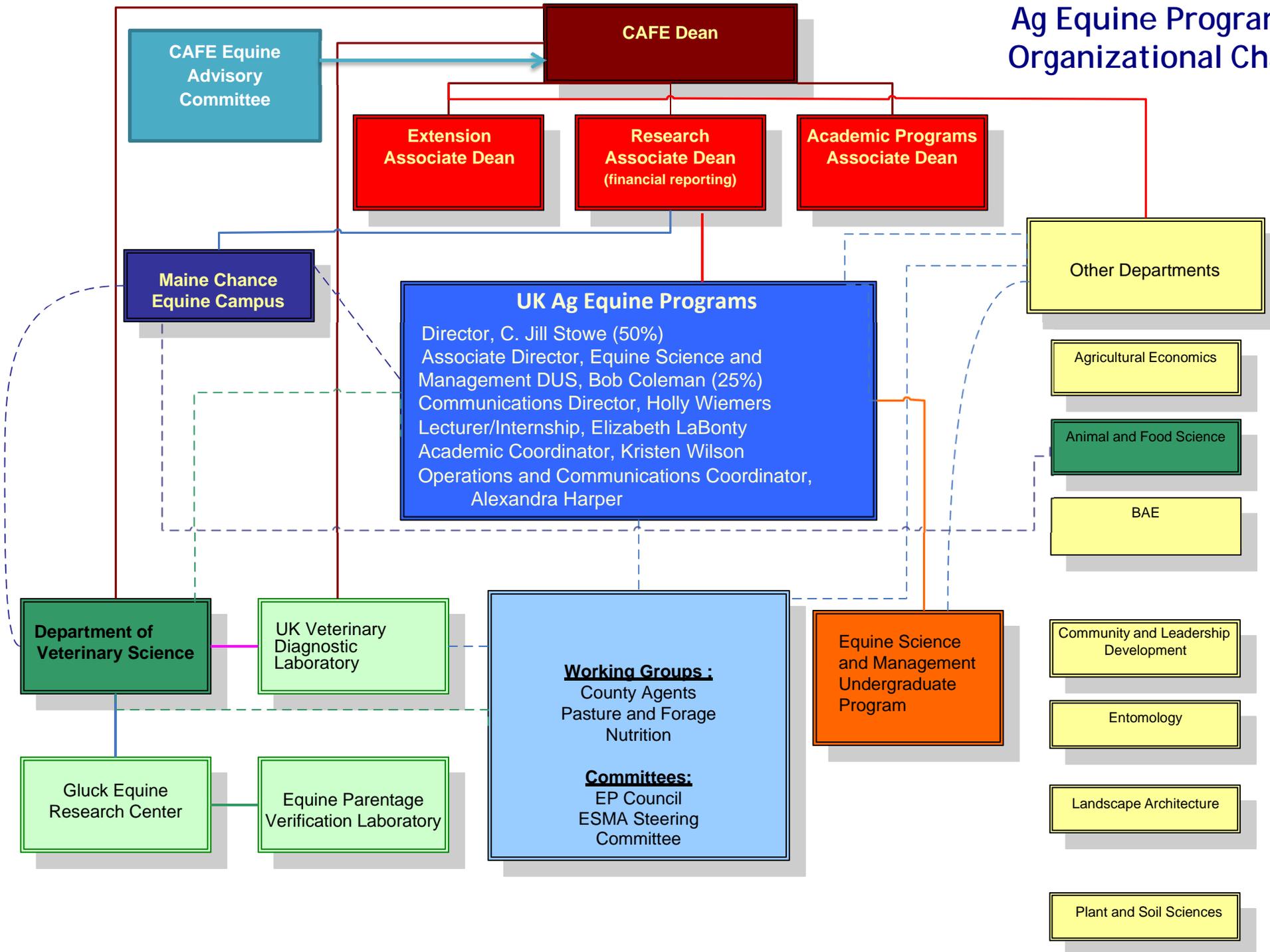
**Appendix to
Self-Study for Periodic Review, 2009 – 2014**

List of Appendices

- A. Equine Programs Organizational Chart
- B. Brief CV's of Teaching Personnel
- C. ESMA Course Offerings and Enrollment
- D. Student Learning Outcomes Assessment Tools
- E. Old and New ESMA Major Sheets
- F. Clubs and Teams Information Sheet

Appendix A

Ag Equine Programs Organizational Chart



Appendix B

Ernest Bailey

M.H. Gluck Equine Research Center, Dept. of Veterinary Science/University of Kentucky/Lexington, KY 40546-0099
voice: 1-859-218-1105/facsimile: 1-859-257-8542/email: ebailey@uky.edu

University Education

University of California, Davis: B.S., 1973; MS, 1975; PhD, 1980

Research and Professional Experience

November 1979 to present: professor, Department of Veterinary Science, University of Kentucky

Service in National and International Organizations (since 2010)Editorial Boards

Editorial Consultant Board: *Equine Veterinary Journal* (January 2012-present)

Editorial Board: *BMC Genetics* (July 2005- present)

Associate Editor: *Journal of Heredity* (2004-present)

Editorial Board, *Animal Biotechnology* (1990- 2013).

Editorial Board: *Mammalian Genome* (December 2006-2013)

Editorial Board Member: *Animal Genetics* (elected 1988-2010).

Research Service

International Society of Animal Genetics (ISAG): President (elected 2010-2014; 2014-2016);

USDA-NRSP8; Species coordinator for the horse; (2008-2013; 2013-2018)

Coordinator for the International Equine Gene Mapping Workshop (1995-present).

Review Panels for Research Proposals

Panel Manager: USAD-NIFA ; Animal Breeding, Genetics and Genomics; May 20-24, 2013, Washington, DC

Panel member; USAID ; Technical Panel for Climate-resilient and Disease-resistant Livestock ; March 26, 2013.

Chair, Morris Animal Foundation Large Animal Scientific Advisory Board (LASAB): 2009-2012. Chair; 2010 -2012.

Review Team Member: 5-year USDA-ARS Animal Health National Program 103 Assessment; June-August 2012.

Panel Manager: USDA-NIFA ; Animal Breeding, Genetics and Genomics; October 24-27, 2011, Washington, DC

Panel Member: NIH; Animals as Models for Human Diseases. Bethesda, MD March 21-22, 2011.

Site Reviews

External Review Committee for NSF Peromyscus Stock Center, Columbia, SC 2007-2012.

Meeting Organization

Conference of the International Society of Animal Genetics; 2014 Organizing committee member, Xian, China.

Plant and Animal Genome Conference Organizing Committee (member) February 2012- January 2015.

World Congress on Genetics Applied to Livestock Production; Leipzig, Germany, August 1-5, 2010; Chair and Organizer of Horse Section.

Graduate Student Committees (since 1983)

In progress: Member of 4 committees, 2 as major advisor

Completed: Member of 56 committees, 13 as major advisor

Undergraduate Teaching

Instructor for VS 307 (3 units): Genetics of Horses; Fall 2014

Instructor for Gen-300-014 (2 units): Equine Infectious Diseases in the Genomics Era; Spring 2014; co-instructors U. Balasuriya and PJ Timoney.

Instructor for Gen-300-010 (3 units): Genetics of Horses; Fall 2013

Instructor for Discovery 130 (3 units): Hoof beats means Horses; Fall 2005- Fall 2008; Fall 2010 & Fall 2011.

Academic Advisor to undergraduates in Agricultural Biotechnology (6 in 2012-2013)

Research Advisor to 10 undergraduate students in Agricultural Biotechnology 1989-present.

Mentoring High School Students

Dunbar Math and Science High School Program: Mentor for 11 projects:

University/College/Department Service (Since 2010)

Veterinary Science Committees (Strategic Planning, APT, Evaluation) 2013-2015.

University Senate; 2012-2015; Representative from College of Agriculture.

Medical Center Clinical Sciences Area Advisory Committee (Sept 2009- August 2011)

HonorsInvited plenary speaker at conferences:

Conference of the British Equine Veterinary Association; September 10-13, 2014; Birmingham, UK; 1) *Primer on Genomics and Heritability* 2) *What Genomics can do for the Horse and Vet.* 3) *The Genomic Age: Disease-free and Excelling.*

National Animal Breeding Center and Animal Production Promotion (NABC-APP); Tehran, Iran. May 25, 2014; Oral presentation. *"Horse Breeding and the Impact of Genomics"*.

National Conference on Undergraduate Research, Lexington, KY April 3-5, 2014; *"Messages written in DNA: A story of people and horses"*

5th International Scientific Conference on Turkmen Horse and Horse Breeding, April 26-28, 2013; Ashgabat, Turkmenistan. *Horse genomics and what it can tell us about horse breeds*.

Equine Affaire 2013; Ohio Expo Center, Columbus, OH; April 12, 2013; Two presentations entitled: *"What genomics tells us about horse breeds"* and *"What genomics can tell us about performance"*.

Havemeyer Equine Ophthalmology Conference: April 1-2, 2011; West Palm Beach Florida. *Horse Genomics*.

National Breeders Conference of the Pyramid Arabian Horse Society; September 16th, 2010; *"Messages to Breeders written in DNA"*, Atlanta, GA.

Thoroughbred Pedigree, Genetics and Performance Conference, September 7-8, 2011, Lexington, Kentucky; *Nature and Extent of Genetic Variation Among Thoroughbred Horses*.

30th Anniversary Havemeyer Workshop: August 17-20, 2011 Saratoga, NY; talk entitled: *Genetics and Genomics before and after Havemeyer*.

Invited Speaker at institutions

University of Delaware, Department of Animal Science; November 21, 2013; Seminar: *Equine Research Using Genomics*.

Northeast University of Agriculture Department of Animal Science, Xian, China; September 18, 2013. *Research on Horse Genomics and Equine Viral Arteritis*.

University of Sydney, Faculty of Veterinary Science. "Genetics and Equine Viral Arteritis: How can we utilize the horse genome to learn about infectious diseases?" July 12, 2012.

University of Kentucky Endowed Chairs and Professor's First Friday Lecture; November 4, 2011; Book review of Maryjean Wall's "How Kentucky Became Southern".

Larsen Lecture; Washington State University, Pullman, May 16-17, 2011. *"Horse Whole-Genome Sequence: Messages Written in DNA"*.

Washington State University, Pullman. May 17, 2011: Larsen Distinguished Speaker Series: *"Genome Wide Association Studies (GWAS) for Horse Diseases: Opportunities and Early Lessons"*

Book

Bailey, E & S A Brooks (2013) *Horse Genetics*, 2nd Edition. CABI publisher, Oxford, UK.

Patent

Bailey E., Brooks SA (2012) Method for Screening for a Tobiano Coat Color Genotype. U.S. Patent Application S.N. 12/353,524 - UKRF 1484 - Docket 434-356 (January 24, 2012)

Refereed Publications

Petersen JL, Mickelson JR, Cothran EG, Andersson LS, Axelsson J, Bailey E, Bannasch D, Binns MM, Borges AS, Brama P, Machado AC, Distl O, Felicetti M, Fox-Clipsham L, Graves KT, Guérin G, Haase B, Hasegawa T, Hemmann K, Hill EW, Leeb T, Lindgren G, Lohi H, Lopes MS, McGivney BA, Mikko S, Orr N, Penedo MCT, Piercy RJ, Raekallio M, Rieder S, Røed KH, Silvestrelli M, Swinburne J, Tozaki T, Vaudin M, Wade CM, McCue M. (2013) Genetic diversity in the modern horse illustrated from genome-wide SNP data. *PLoS One* 8: e54997.

Petersen JL, Mickelson JR, Rendahl AK, Valberg SJ, Andersson LS, Axelsson J, Bailey E, Bannasch D, Binns MM, Borges AS, Brama P, Machado AC, Capomaccio S, Cappelli K, Cothran EG, Distl O, Fox-Clipsham L, Graves KT, Guérin G, Haase B, Hasegawa T, Hemmann K, Hill EW, Leeb T, Lindgren G, Lohi H, Lopes MS, McGivney BA, Mikko S, Orr N, Penedo MCT, Piercy RJ, Raekallio M, Rieder S, Røed KH, Swinburne J, Tozaki T, Vaudin M, Wade CM, McCue. (2013) Genome-wide analysis reveals selection for important traits in domestic horse breeds. *PLoS Genetics* 9: e1003211

Go YY, Bailey E, Timoney PJ, Shuck KM and Balasuriya UBR (2012) *In vitro* susceptibility of CD3⁺ T lymphocytes to equine arteritis virus infection reflects genetic predisposition of naturally infected stallions to become carriers of the virus. *Journal of Virology* 86: 12407-12410.

McCue, ME, Bannasch DL, Petersen JL, Bailey E, Binns E, Distl O, Guerin G, Hasegawa T, Hill EW, Leeb T, Lindgren G, Penedo MCT, Roed KH, Ryder OA, Swinburne JE, Tozaki T, Valberg SJ, Vaudin M, Lindblad-Toh K, Wade CM, Mickelson JR. (2012) A high density SNP array for the domestic horse and extant perissodactyla: utility for association mapping, genetic diversity and phylogeny studies. *PLoS Genetics*: 8: e1002451

Binns M., Boehler D., Bailey E., Lear T., Cardwell J., Lambert D. (2012) Inbreeding in the Thoroughbred horse. *Animal Genetics* 43: 340-342.

- Go, Y.Y., Bailey E., Cook D., Coleman S., MacLeod J., Chen K-C, Timoney P., and Balasuriya U.B. (2011) Genome-Wide Association Study Among Four Horse Breeds Identifies a Common Haplotype Associated with the In Vitro CD3+ T Cell Susceptibility/Resistance to Equine Arteritis Virus Infection. *J. Virol.* 85:13174-13184
- Tseng CT, D. Miller D, Cassano J, Bailey E and Antczak DF (2010) Molecular Identification of Equine Major Histocompatibility Complex Haplotypes using Polymorphic Microsatellites. *Animal Genetics* 41 (supl 2): 150-153.
- Cook D, Gallagher PC and Bailey E (2010) Genetics of Swayback in American Saddlebred Horses. *Animal Genetics* 41 (supl 2): 64-71.
- Brooks SA & Bailey E (2010) RT-qPCR Comparison of Mast Cell Populations in Whole Blood from Healthy Horses and those with Laminitis. *Animal Genetics* 41 (supl 2): 16-22.
- Holl H., Brooks S & Bailey E. (2010) *De novo* mutation of *KIT* discovered as a result of non-hereditary white coat color pattern. *Animal Genetics* 41(supl2): 196-198.
- Bellone RB, Forsyth G., Leeb T, Archer S, Sigurdsson S, Mauceli E., Enquensteiner M., Bailey E., Sandmeyer L, Grahn, B (2010) Fine mapping and mutation analysis of *TRPM1*, a candidate gene for *Leopard Complex (LP)* spotting and congenital stationary Night Blindness (CNSB) in horses. and Fine Mapping the Leopard Complex (LP) Spotting Gene and Congenital Stationary Night Blindness (CSNB) in Horses. *Briefings in Functional Genomics and Proteomics* 9:193-207
- Wade CM, Giulotto E, Sigurdsson S, Zoli M, Gnerre S, Imsland F, Lear TL, Adelson DL, Bailey E, Bellone RR, Blöcker H, Distl O, Edgar RC, Garber M, Leeb T, Mauceli E, MacLeod JN, Penedo MCT, Raison JM, Sharpe T, Vogel J, Andersson L, Antczak DF, Biagi T, Binns MM, Chowdhary BP, Coleman SJ, Della Valle G, Fryc S, Guérin G, Hasegawa T, Hill EW, Jurka J, Kiialainen A, Lindgren G, Liu J, Magnani E, Mickelson JR, Murray J, Nergadze SG, Onofrio R, Pedroni S, Piras MF, Raudsepp T, Rocchi M, Røed KH, Ryder OA, Searle S, Skow L, Swinburne JE, Syvänen AC, Tozaki T, Valberg SJ, Vaudin M, White JR, Zody MC (2009) Genome sequence, comparative analysis and population genetics of the domestic horse (*Equus caballus*). *Science* 326: 865-867.

Book Chapters, Reviews & Editorials

- Bailey, E. (2014) Five things equine veterinarians should know about genomics. *Equine Veterinary Journal* 46: 404-407.
- Bailey, E (2014) Heritability and the Equine Clinician. *Equine Veterinary Journal* 46:12-14.
- Bailey E (2011) Editorial: Screening for Foal Immunodeficiency Syndrome. *Veterinary Record* 169: 653-654.
- Bailey E (2011) Relevance of Genomics to Equine Reproduction. In: (EL Squires, WE Vaala, and DD Varner, editors) *Equine Reproduction*. Blackwell Publishing. Chapter 298, p 2827-2831.
- Bailey E (2011) Equine Parentage. In: (AO McKinnon, EL Squires, WE Vaala, and DD Varner, editors) *Equine Reproduction*. Blackwell Publishing. Chapter 297, p 2820-2826.

CURRICULUM VITAE

Barry A. Ball

Department of Veterinary Science
108 Gluck Equine Research Center
University of Kentucky

Lexington, KY 40546-0099 (859) 218-1141 Fax: (859) 257-8542 e-mail: b.a.ball@uky.edu

Education

Virginia Tech	BS candidate	1974-77	Animal Science
University of Georgia	DVM	1981	Summa Cum Laude
Cornell University	PhD	1987	Veterinary Medicine
American College of Theriogenologists	Board Cert.	1987	Diplomate

Appointments

- 2010-current Professor and Clay Chair in Equine Reproduction. Department of Veterinary Science, Gluck Equine Research Center, University of Kentucky.
- 2004-05 **Bye Fellow**, Robinson College, University of Cambridge.
- 1996-2010 Professor, University of California, Davis, Department of Population Health and Reproduction. John P. Hughes Endowed Chair in Equine Reproduction,
- 1993-96 Associate Professor of Theriogenology, Cornell University, Department of Clinical Sciences.
- 1987-93 Assistant Professor of Theriogenology, Cornell University, Department of Clinical Sciences.
- 1984-87 Graduate Research Assistant, Cornell University.
- 1982-84. Resident in Reproduction, University of Florida, Clinical Theriogenology, instruction of third and fourth year veterinary students.
- 1981-82 Veterinarian, Washington County Veterinary Service, Abingdon, Virginia. Bovine and equine practice.

Professional Societies

- 1981-present American Veterinary Medical Association.
- 1981- present Society for Theriogenology,.
- 1987- present American College of Theriogenologists. President-elect 2013-14.
- 1996- present American Association of Equine Practitioners.

Honors and Awards

- 1984 Graduate rotating assistantship - College of Veterinary Medicine, Cornell.
- 1987 First place award, Student Research Competition, International Embryo Transfer Society, Dublin, Ireland.
- 1992 SmithKline Beecham Award for Research Excellence - Cornell University.
- 1996 Excellence in Equine Research Award, American Veterinary Medical Association.
- 1997 John P. Hughes Endowed Chair in Equine Reproduction. University of California, Davis.
- 1997 Schering-Plough Award for Outstanding Research in Equine Reproduction; World Equine Veterinary Association; Padua, Italy.
- 2003 Carl Norden – Pfizer Distinguished Teacher Award; School of Veterinary Medicine, University of California, Davis.
- 2004-05 Bye Fellow, Robinson College; University of Cambridge.
- 2004-05 Fulbright Distinguished Scholar – University of Cambridge and Equine Fertility Unit, Newmarket.
- 2005-13 Senior Membership, Robinson College; University of Cambridge.
- 2012 Theriogenologist of the Year. American College of Theriogenologists.

Selected Publications (from a list of 114 referred publications):

- 1) Ricker JV, Linfor JJ, Delfino WJ, Kysar P, Scholtz EL, Tablin F, Crowe JH, **Ball BA**, Meyers SA. Equine sperm membrane phase behavior: The effects of lipid-based cryoprotectants. *Biol Reprod* 74:359-365, 2006.
- 2) Sabeur K, **Ball BA**. Detection of superoxide anion generation by equine spermatozoa *Am J Vet Res* 67:701-706, 2006.
- 3) Brinsko SP, **Ball BA**. Characterization of lymphocyte subsets in the equine oviduct. *Eq Vet J* 38:214-218, 2006.
- 4) **Ball BA**, Sabeur K, Nett TM, Liu IKM. Effects of a GnRH-cytotoxin on reproductive function in peripubertal male dogs. *Theriogenology* 66:766-774, 2006.
- 5) Sabeur K, **Ball BA**. Characterization of galactose-binding proteins in equine testis and spermatozoa. *An Reprod Sci* 101:74-84, 2007.
- 6) Sabeur K, **Ball BA**. Characterization of NADPH oxidase 5 (NOX5) in equine testis and spermatozoa. *Reproduction* 134:263-270, 2007.
- 7) Burnaugh L, Sabeur K, **Ball BA**. Generation of superoxide anion by equine spermatozoa as detected by dihydroethidium. *Theriogenology* 67:580-589, 2007.

- 8) Brown JA, Mapes S, **Ball BA**, Hodder ADJ, Liu IKM, Pusterla N. Prevalence of equine herpesvirus-1 infection among Thoroughbreds residing on a farm on which the virus was endemic. *J Am Vet Med Assoc*. 231:577-580, 2007.
- 9) **Ball BA**, Sabeur K, Allen WR. Liposome-mediated uptake of exogenous DNA by equine spermatozoa and applications in sperm-mediated gene transfer. *Equine Veterinary Journal* 40:76-82, 2008.
- 10) Sabeur K, **Ball BA**, Corbin CJ, Conley A. Characterization of a novel, testis-specific equine serine / threonine kinase. *Mol Reprod Dev* 75:867-873, 2008.
- 11) **Ball BA**, Conley AJ, Grundy SA, Sabeur K, Liu IKM. Expression of anti-Müllerian Hormone (AMH) in the equine testis. *Theriogenology* 69:624-631, 2008.
- 12) Brum A, Sabeur K, **Ball BA**. Apoptotic-like changes in equine spermatozoa separated by density-gradient centrifugation or after cryopreservation. *Theriogenology* 69:1041-1055, 2008.
- 13) **Ball BA**, Conley AJ, Grundy SA, Sabeur K, Liu IKM. Expression of anti-Müllerian Hormone (AMH) in equine granulosa-cell tumors and in normal equine ovaries. *Theriogenology* 70:968-977, 2008.
- 14) Claes A, **Ball BA**, Brown JA, Kass PH. Rectal tears in horses: Risk factors, management and outcome: 99 cases (1985-2006). *J Am Vet Med Assoc* 233:1605-1609, 2008.
- 15) **Ball BA**. Oxidative stress, osmotic shock and apoptosis: Impacts on sperm function and preservation in the horse. *An Reprod Sci* 107:257-267, 2008.
- 16) Burnaugh L, **Ball BA**, Sabeur K, Thomas AD, Meyers SA. Osmotic stress stimulates generation of superoxide anion by equine spermatozoa. *An Reprod Sci* 117:249-260, 2010.
- 17) Assis AC, **Ball BA**, Browne P, Conley AJ. Cellular Localization of Androgen Synthesis in Equine Granulosa-theca Cell Tumors: Immunohistochemical Expression of 17 α -hydroxylase/17,20-lyase Cytochrome P450. *Theriogenology* 74:393-401, 2010.
- 18) Almeida J, Conley AJ, Mathewson L, **Ball BA**. Expression of steroidogenic enzymes during equine testicular development. *Reproduction* 141:841-848, 2011.
- 19) Almeida J, **Ball BA**, Conley AJ, Mathewson L, Place NJ, Liu IKM, Scholtz EL, Stanley SD, Moeller BC. Biological and clinical significance of anti-Müllerian hormone determination in blood serum of the mare. *Theriogenology* 76:1393-1403, 2011.
- 20) Almeida J, Conley AJ, Mathewson L, **Ball BA**. Expression of anti-Müllerian hormone, CDKN1B, androgen receptor and connexin43 in equine testis during puberty. *Theriogenology* 77:847-857, 2012.
- 21) Pereira GR, Lorenzo PL, Carneiro GF, **Ball BA**, Goncalves PB, Pegoraro LM, Bilodeau-Goeseels S, Kastelic JP, Casey PJ, Liu IKM. The effect of growth hormone (GH) and insulin-like growth factor-I (IGF-I) on in vitro maturation of equine oocytes. *Zygote* 20:353-360, 2012.
- 22) **Ball BA**, Almeida J, Conley AJ. Determination of serum anti-Müllerian hormone concentrations for the diagnosis of granulosa-cell tumors in mares. *Equine Vet J* 45:199-203, 2013.
- 23) Almeida J, Conley AJ, **Ball BA**. Expression of anti-Müllerian hormone, cyclin kinase inhibitor, connexin 43, androgen receptor and steroidogenic enzymes in the equine cryptorchid testis. *Equine Vet J* 45:538-545, 2013.
- 24) Stoll A, Love CC, **Ball BA**. Use of a single-layer density centrifugation method enhances sperm quality in cryopreserved-thawed equine sperm. *J Equine Vet Sci* 33:547-551, 2013.
- 25) Keith LA, **Ball BA**, Scoggin KE, Esteller-Vico A, Woodward EM, Squires EL, Troedsson MHT. Diestrus administration of oxytocin prolongs luteal maintenance and reduces plasma PGFM concentrations as well as endometrial COX-2 expression in mares. *Theriogenology* 79:616-624, 2013.
- 26) Claes A, **Ball BA**, Almeida J, Corbin CJ, Conley AJ. Serum anti-Müllerian hormone concentrations in stallions: Developmental changes, seasonal variation, and differences between intact stallions, cryptorchid stallions and geldings. *Theriogenology* 79:1229-1235, 2013.
- 27) Pereira GR, Lorenzo PL, Carneiro GF, **Ball BA**, Bilodeau-Goeseels S, Kastelic J, Pegoraro LMC, Pimentel CA, Esteller-Vico A, Illera JC, Granado G, Casey P, Liu IKM. The involvement of growth hormone in equine oocyte maturation, receptor localization and steroid production by cumulus-oocyte complexes in vitro. *Res Vet Sci* 95:667-674, 2013.
- 28) **Ball BA**, Scoggin KE, Troedsson MHT, Squires EL. Characterization of Prostaglandin E₂ Receptors (EP2, EP4) in the Equine Oviduct. *An Reprod Sci* 142:35-41, 2013.
- 29) Canisso IF, **Ball BA**, Troedsson MH, Silva ESM, Davolli GM. Decreasing pH of mammary gland secretions is associated with parturition and is correlated with electrolyte concentrations in prefoaling mares. *Vet Rec* 173:218, 2013.
- 30) Claes A, **Ball BA**, Corbin CJ, Conley AJ. Age and season affect serum testosterone concentrations in cryptorchid stallions. *Vet Rec* 173:168, 2013.
- 31) Kruger M, Pitts N, Fayrer-Hosken R, **Ball BA**, Virgo J, Betts E, Buss P. Validation of a fecal glucocorticoid metabolite assay to measure stress in the White Rhinoceros (*Ceratotherium simum*). *Gen Comp Endocrinol* (submitted) 2013.
- 32) **Ball BA**, Conley AJ, Almeida J, Esteller-Vico A, Crabtree J, Munro C, Liu IKM. A retrospective analysis of 2,253 cases submitted for endocrine diagnosis of possible granulosa-cell tumors in mares. *J Eq Vet Sci* 34:307-313, 2014.
- 33) Canisso IF, **Ball BA**, Erol E, Claes A, Scoggin KE, McDowell KJ, Williams NM, Dorton Ar, Wolfsdorf KE, Squires EL, Troedsson MHT. Experimental induction of nocardioform placentitis (*Crossiela equi*) in mares. *Equine Vet J* (in press) 2014.
- 34) Scholtz EL, Krishnan S, **Ball BA**, Corbin CJ, Moeller BC, Stanley SD, McDowell KJ, Hughes AL, McDonnell DP, Conley AJ. Pregnancy without Progesterone: A "new", natural progestin. *PNAS* (In press) 2014.

35) Claes A, **Ball BA**, Scoggin KE, Esteller-Vico A, Kalmar JJ, Conley AJ, Squires EL, Troedsson MHT. The relationship between anti-Müllerian hormone, ovarian follicular populations and age in mares. *Reproduction* (submitted) 2014.

CURRICULUM VITAE
Fernanda C. Camargo

Rank: Associate Extension Professor
Title: Extension Title Series
Date of Appointment: September 17, 2007
DOE: 75.3% Extension, 24.7% Instruction

TEACHING AND ADVISING:

Courses Taught

<u>Year</u>	<u>Semester</u>	<u>Number</u>	<u>Section</u>	<u>Description</u>	<u>Enrollment</u>
2014	Fall	ASC 310	001	Equine Anatomy and Conformation	45
2014	Spring	EQM 351	001	Equine Health and Disease	47
2013	Fall	EQM 351	001	Equine Health and Disease	45
2013	Spring	ASC 310	001	Equine Anatomy and Conformation	65

Guest Lectures

- ASC 320- Equine Management: September 2013 and September 2014, 8 hands-on lab sessions on how to conduct a clinical examination on a horse, with focus on vital signs.

Undergraduate Advising: 17 advisees.

Thesis and Dissertation Committees: Committee Member in Karin Pekarchik Master's Thesis Committee.

EXTENSION:

ONGOING PROGRAMS:

1. Kentucky 4-H Horse Program: I oversee, coordinate and provide leadership for the 4-H Horse Program in Kentucky. I provide learning opportunities for the youth through camps, clinics, seminars, the State Horse Show, the State Horse Contest, and the State Horse Judging Contest. My role is to ensure the quality of the program content, facilitating communication among leaders, agents and parents, serving as liaison with the sites where the events are held, monitoring budget issues, and ensuring that the rules are clear. Approximately 250 youth participate in the State Contest, 120 youth participate in the State Judging Contest, and about 700 youth and 800 horses participate in the State Show.

2. Horse Volunteer Certification Program: This program was implemented in the Fall of 2010 to train club volunteer leaders on youth development. To date there have been 10 certification workshops, and over 300 certified leaders.

3. Horse Discovery Website: I developed the content for this webpage. This resource covers 11 different topics, which are: breeds, bits, equipment, external parasites, forages, feed ingredients, internal parasites, record keeping, judging, poisonous plants, and shoes. Webpage went live in 2013: <http://www2.ca.uky.edu/horsediscovery/>

4. Saddle Up Safely (Executive committee and Web blogger): This program has the objective to improve the safety in horseback riding. I am part of the executive committee and I also write a

periodic blog about horse safety and general horse health care. To date I have written over 100 blog posts, which were accessed over 100,000 times. As part of the executive committee I help decide the direction the program will take, and I have also reviewed and helped edit the 7 published safety brochures (Trailer your Horse Safely, Travel to New Environments, Pasture Safety, Barn Safety, Horseback riding safety, Horse related injury, and Horse transmitted disease).

5. Kentucky 4-H Volunteer Forum: The Kentucky 4-H Volunteer Forum is a biannual event sponsored by the State 4-H Office. The Horse Track consists of 11 workshops and presentations designed to provide updates and training to agents and leaders on the 4-H Horse Program. My role is to coordinate the Horse Track in the Volunteer Forum, recruit and select the 11 workshop speakers, and run the Horse Track during the event.

PUBLICATIONS:

A. Peer Reviewed Extension Fact Sheet Publications:

1. Hosting a Horse Show. Fernanda Camargo and Amy Lawyer. 2014
2. Stereotypic Behavior in Horses: Weaving, Stall Walking, and Cribbing. Fernanda C Camargo, ASC 212, 2014.
3. Selecting Feeds for Horses. Laurie Lawrence and Fernanda Camargo, ASC 205, 2013.
4. Feeding the Broodmare. Laurie Lawrence and Fernanda Camargo. Fact Sheet ASC-185, 2013.

B. Other Publications:

1. Featured on Horse Illustrated Magazine in November 2013 with horse QNR Rhythm N' Blues.

SERVICE AND RECOGNITION:

Invited Presentations:

1. Host for the 2014 International Society of Rider Biomechanics Symposium, September 2014, Lexington KY.
2. Scientific Proofs: From Hoof to Harness, at the Kentucky Science Center, May 2014, Louisville KY. Part of a panel of experts discussing the science of the thoroughbred industry covering topics such as injury treatment, pathology, geriatrics, and horse care.
3. Updates in the Horse 4-H Program – What does the Horse Program have to offer you and your club? 4-H Volunteer Leaders Forum, Horse Track, February, 2014.
4. **Camargo, FC**; Lawyer, KA; Willis, CM; Bott, R. Comparative Analysis of State 4H Horse Programs. American Society of Animal Science – Midwest Section, March 2013, Des Moines, IA.
5. Anatomy of Riding: at the International Society of Rider Biomechanics Symposium, April 2013, Lexington KY.
6. Rules and Regulations and How to Get Involved with the 4H Horse Program: 4H Youth Development Agent Training, December, 2013, Lexington KY.
7. Horse Volunteer Certification Program: Healthy Horse Year-round. Two workshops in 2013 and two in 2014.

8. How to wrap your horse's legs: workshop presented 4 times at the District 4 4H Horse Camp in 2013 and one time for Jessamine County horse club in 2014.

Board membership:

1. Organizing Committee for the Equine Symposium for the JAM 2015, joint meeting of American Dairy Science Association and American Society of Animal Science.
2. Served as Interim President of International Society of Riders Biomechanics from October 2013 to February 2014.
3. Eastern Nationals Horse Roundup, Board of Directors Member, from 2007-present. Will be interim Chair starting in November 2014.

University Service

1. Animal and Food Sciences, Social Committee, Member, 2008-Present.
2. Ag Round-Up, Serving Crew, 2013.

GRANTS AND DONATIONS

1. PI: Fernanda Camargo; Purpose: Sponsorship of Kentucky 4-H Horse Program; Source: Kentucky Corn Growers Association, \$25,000.00, 2014.
2. PI: Fernanda Camargo; Purpose: Sponsorship of Kentucky 4-H Horse Program; Source: Kentucky Corn Growers Association, \$25,000.00, 2013.

Timothy T. Capps

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timothy_capps@yahoo.com

EXPERIENCE

Director, University of Louisville Equine Industry Program, College of Business

Director of and faculty member in Equine Industry Program; teach courses in marketing, management, communications and industry issues; direct training program for racing industry officials which includes continuing education programs; teach AEC 300-003, Equine Marketing, University of Kentucky, Fall 2011.

Horse industry consultant on marketing, communications, business management, gaming, legislative and regulatory issues.

Maryland Jockey Club
Executive Vice President

Responsible for marketing, promotions, group sales, legislative relations, corporate communications, strategic and policy planning; also performed general operational tasks for major event days, such as the Preakness Stakes, Maryland Million, etc. Managed staff responsible for printing and program production and planning for major events and special promotions. Directed media buying and creative presentation of the organization.

Maryland Horse Breeders Association/Maryland Million
Executive Vice President

Chief Operating Officer for trade association of 750 members who breed Thoroughbred horses; responsible for staffing, budgeting and day-to-day operations, including editing and publishing a four-color monthly magazine. Directed Maryland Million, a promotional racing event; duties included sponsorship sales, public relations, and event management.

Matchmaker Racing Services
Vice President

Consultant to race tracks in creating, planning, developing and managing major racing events, such as the Pimlico Special, Molson Million and Laurel International Turf Festival. Responsible for solicitation of participants, publicity and promotion, owner hospitality, marketing and media coordination.

Thoroughbred Record Magazine
Editor and Publisher

Published and edited a four-color weekly magazine about Thoroughbred racing and breeding averaging 140 pages each week, with about 18,000 subscribers. Responsible for all phases of the operation, including editorial planning and

execution, production, staffing, business operations and budgeting. Oversaw transition from weekly to monthly publication.

Balch Hardy & Scheinman (investment counselors) Portfolio Manager/Analyst
Managed equity portfolios for institutional and high-end individual clients; provided fundamental and technical stock market research capabilities; interfaced with clients regarding account performance. Focused on using sophisticated analytical technologies to manage varied baskets of securities, utilizing derivative investment products as portfolio management tools.

Dean Witter Reynolds
Registered Representative
Served as stock broker with NYSE member firm; left to join investment counseling firm.

The Jockey Club
Director of Operations
Directed activities of the Thoroughbred Breed Registry, which included staffing, budgeting, database management, planning, and general administrative management, in addition to industry relations.

Defense Logistics Agency
Management Analyst
Monitored and provided analysis of Department of Defense supply procurement and support systems, including planning and development of new initiatives. Specialized in energy procurement, distribution, and management.

U.S. Army
Infantry Officer (left service as a Captain)
Platoon leader, company commander and combat operations officer in combat infantry units. Awarded several commendations for combat service.

ACCOMPLISHMENTS

Author of numerous analytical and opinion articles for a wide variety of publications, as well as three published books about famous racehorses, and segments of four additional books. Have served on a number of professional boards and committees, requiring frequent public speaking appearances and testifying before legislative and regulatory bodies on public policy issues concerning horse racing, gaming, agricultural and land use matters.

COMMUNITY ACTIVITIES

Served as Chairman of the Board of a private school, served as board member of the Maryland Council on Economic Education and on several community boards that deal with youth activities, as a member of the Maryland Horse Industry Board, the Governor's Task Force on Agriculture in Maryland, the executive committee of the Maryland Horse Council, the Racing Committee of the American Horse Council, and a variety of other boards and committees

that dealt with business or community matters.

Member of the Grassroots Committee of the Kentucky Equine Education Project, a horse industry information group; member, Advisory Board of the National Association of Equine Affiliated Academics; member, Board of Directors of the North American Racing Officials Accreditation Program; member, Health and Welfare Committee of the American Horse Council; member, Board of Directors, Center for Women in Racing

EDUCATION

University of Tennessee, B.S. in Journalism
Completed coursework requirements for M.A. in Finance at George Washington University; completed certificate program at Harvard Business School.

Curriculum Vitae

Robert J Coleman

Associate Extension Professor

Date promoted: July 1, 2005

Distribution of Effort: 55% Extension, 20% Teaching and 25% Administration

Research (Extramural)

- 1) Equine Metabolic Syndrome and Shivers NRI Integrated Research and Extension Program PI K. Martinson University of Minnesota, Co PI's: M. McCue, S. Valberg, J. Mickleson, (University of Minnesota) R. Goer Michigan State, Extension collaborators D. Sigler, TAMU, J. Roser UC Davis, **R. Coleman** UK \$550,000 grant through December 2012
- 2) 2011. \$300,000. Kentucky Agricultural Development Fund, Governor's Office of Agricultural Policy **Growing Kentucky's Equine Economy: Establishing a Baseline with the Kentucky Equine Survey**. PI Ginny Grulke, Kentucky Horse Council. Participants: C. Jill Stowe (University of Kentucky, Project Leader), Mary Rossano (University of Kentucky), **Robert Coleman** (University of Kentucky), Alison Davis (University of Kentucky), Timothy Capps (University of Louisville), Leland Brown (National Agricultural Statistics Services), Shawn Clark (National Agricultural Statistics Services), Holly Weimers (University of Kentucky), Audrey Jarrett (University of Kentucky). Role: Co-I.
- 3) 2012. Approximately \$115,000 from private industry sources, the funds were raised to meet the mandate that at least \$100,000 in matching funds were needed for grant below. **Growing Kentucky's Equine Economy: Establishing a Baseline with the Kentucky Equine Survey**. PI Ginny Grulke, Kentucky Horse Council. Participants: C. Jill Stowe, University of Kentucky, Project Leader, Mary Rossano, University of Kentucky, **Robert Coleman** University of Kentucky, Alison Davis University of Kentucky, Timothy Capps University of Louisville, Leland Brown National Agricultural Statistics Services, Shawn Clark National Agricultural Statistics Services, Holly Weimers University of Kentucky, Audrey Jarrett University of Kentucky. Role: Co-I.
- 4) 2011-2013. C.J. Stowe [Co-PI], M.G. Rossano [Co-PI], R.J. Coleman, N. Cox, L. Brown. **Kentucky Equine Survey**. Hatch Funds. \$200,000 seed money to start a state-wide equine survey in Kentucky. Approximately 10% effort for Dr. Coleman in 2011-12.
- 5) **Improving dietary protein quality in forage fed horses**. PI: **K.L. Urschel**; Co-PI: **R.J. Coleman**. *Project funded by the USDA-ARS Forage Animal Production Research Unit Specific Cooperative Agreement with the University of Kentucky. Total funding received: \$193,557. Grant period: January 1, 2013 – December 31, 2015. Research to begin in 2013*
- 5) 2011 -2012 Kentucky Equine Research supported the Larry Lawrence Fellowship \$52,000. This funding supports C. Whitehouse a Masters student

Graduate Committee Service

Served on the examination committee for 3 MS students

Major Professor for two Masters Students, Christin Herbst in progress and Catherine Whitehouse graduated 2014

Teaching

Equine Capstone EQM 490 two sections per semester and Capstone is offered each semester

ASC 410G Equine Science team teach with Dr. Urschel two sections each spring and teach a third section alone which is delivered as needed for students who cannot take the regular course due to scheduling conflicts

Gen 109 Tack and Tools offered the first time in spring 2014. Team taught with K. Wilson. The course is moving to the fall semester and going from 1 credit to 2 credits

GEN 300 Facility Design and Management taught the first time in spring 2014. Team taught with Dr. Stowe.

ASC 395 Special Problems in Animal Sciences 3 -4 students per semester

Advising I advise 75 plus students per year primarily students enrolled in the Equine Science and Management degree program but do have a few Animal Science students. . In addition I meet with 5-6 students each semester regarding potential internship opportunities and employment related opportunities.

Recruitment I meet with 60 plus prospective students per year. The student visits are related to the Equine Science and Management degree program. In addition to on campus visits I receive an equal number of phone calls and e-mails requesting information on the program.

Other Student Activities Faculty advisor for the UK Equestrian Team. The team had 55 active student members. The team is divided into two divisions which meet separately and are coached by different coaches. . As faculty advisor I have contact with 40 -50 prospective student members each year who are interested in the team but are not in the College of Agriculture. I also coordinate the horse donation program for those wishing to donate to the UK Equestrian Team. Horse donations to the program have exceeded \$500,000.00 to date.

Other Teaching Activities

Fall semester guest lectures on Breeds in EQM 101 Intro to the Horse and the Horse Industry

Spring semester lectures on Equine production in ASC 382 Animal Production Principles

Spring guest lectures on grazing management for horse owners in PLS 510 Forage Production

Spring 2013 Lectured and arranged farm /industry tours for MESB students

Teaching outside UK

Kentucky Horse Shoeing School I give lectures to the farrier students on Conformation, Athletic Movement and Nutrition. These lectures are every 5 weeks throughout the year.

AgroSup Dijon I was a visiting scholar to the Masters of Equine Science and Business

AgroSup, Dijon France in February 2011. Taught Equine reproduction, growth physiology, behavior and Equine terminology

Publications

Journal Articles

Estimation of body weight and development of a body weight score for adult equids using morphometric measurements K. L. Martinson, R.J. Coleman, A. K. Rendahl, Z. Fang, and M. E. McCue J ANIM SCI May 2014 92:2230-2238;

Role of coat color genotypes in risk and severity of melanoma in gray quarter horses

R. Teixeira, A. Rendahl, S. Anderson, Mickelson, D. Sigler, B. Buchanan, **R. Coleman** and M. McCue Journal of Internal Medicine (submitted)

Abstracts and Conference Proceedings

Development, Marketing and Branding of Mobile Apps for the Horse Industry
Krishona Martinson, **Robert Coleman** and Molly McCue 2012 ADSA-ASAS Joint Annual Meeting, Kansas City KS, July 21-24, 2014. J Animal Science 92:142
C. Landwehr, W. Stutz, A Brzezicki and **R. Coleman** Having References at Your Fingertips In Proceedings of the 2014 NAEAA Conference Louisville Kentucky
E. LaBonty and **R. Coleman** Different but the same: A deeper look at the University of Kentucky Equine Science and Management Student population In Proceedings of the 2012 NAEAA Conference Bozeman Montana
K. Martinson, **R. Coleman**, J. Earing, A. Rendahl and M. McCue Body Condition Score of horses at two Minnesota horse shows #49485 2012 ASAS Midwest meeting
Estimation of idea body weight in horses and ponies using morphometric measurements #499 K. Martinson, **R. Coleman**, J. Earing, A. Rendahl and M. McCue 2012 ADSA-CSAS-AMPA-WSAS-ASAS Joint Annual Meeting, Phoenix AZ, July 15-19, 2012. J Animal Science 90(Suppl. 3): Abstract #499.
Tanner SL*, Good LR*, DeLuca EA*, **Coleman RJ** and Urschel KL Feeding graded amounts of lysine to yearling thoroughbred colts does not activate the mTOR signaling pathway. 2012 ADSA-CSAS-AMPA-WSAS-ASAS Joint Annual Meeting, Phoenix AZ, July 15-19, 2012. J Animal Science 90(Suppl. 3): Abstract #364.

Extension Publications

1-Establishing horse pastures ID 143 2011 R. Smith, G. Lacefield, D. Ditsch (Plant and Soil Sciences), **R. J. Coleman**, L. Lawrence (Animal and Food Sciences) and J. Henning
2- Equine Initiative Calendar 2012 2013 ID 196 Editors B. Newman, D. Wilson and **R. Coleman**
3-Help my horse too fat ASC 187 F. Camargo, L. Lawrence and **R. Coleman**
4-Help my horse too thin ASC 188 F. Camargo, L. Lawrence and **R. Coleman**
5-Best management practices to prevent diseases in horses, ponies, mules and donkeys 2011 M. Simon, E. Rogers, E. Hall, F. Fairies Jr, A. Dunn, **R. Coleman**, B. Sargent and M. Leit Browning, SS ERT 01 03 11 Foreign Animal and Zoonotic Defense: A series for Small Scale producers and hobby owners. <http://fazd.tamu.edu/files/2012/06.prevent-diseasein> horses. English. PDF
6-Diseases that affect horses, ponies, mules and donkeys 2011 M. Simon, E. Rogers, E. Hall, F. Fairies Jr, A. Dunn, **R. Coleman**, B. Sargent and M Leit Browning, SS ERT 01 03 11 Foreign Animal and Zoonotic Defense: A series for Small Scale producers and hobby owners <http://fazd.tamu.edu/files/2012/06.prevent-diseasein> horses.English. PDF

Extension Media

Healthy Horse App produced in cooperation with the University of Minnesota and available on both Apple and Droid systems. Available November 2013

Meetings, Presentations and Consultations

Invited Presentations

Energy Concepts, 2011 Southern States Basic Equine Feedmaster program Richmond, Virginia
Protein and amino acids, 2011 Southern States Basic Equine Feedmaster program Richmond, Virginia
NTRA Horse owners program 2011 How to use Body Condition Scoring with the retired Race Horse Lexington, Kentucky
NTRA Horse owners program 2011 Feeding on a budget for the retired Race Horse Lexington Kentucky
Certified Horsemanship Association International Convention 2011 Body condition scoring how the system works. Lexington Kentucky
Certified Horsemanship Association International Convention 2011 Hands on presentation on how to use the BCS system Lexington Kentucky
The Geriatric Horse, 2012 Southern States Advanced Equine Feedmaster program Knoxville TN
Thoroughbred Owners and Breeders Association Pasture Management Lexington Kentucky
2012 Equine Affaire Body Condition Scoring for Horse Owners Columbus Ohio
2012 Equine Affaire Feeding the Horses Foot Columbus Ohio
UC Davis Hands on Horseman Program Estimating Body weight and using the Body Condition Score system Davis California

Service and Recognition

Administrative

Associate Director for Undergraduate Education, Equine Science and Management
Director of Undergraduate Studies Equine Science and Management
Chair of the Equine Academic Coordinator Search committee Aug 2012
Co-Chair Forage Working Group UK Ag Equine Programs
Ex Officio member of the Agent Working Group UK Ag Equine Programs
Member of the College Undergraduate Curriculum committee
IACUC Committee Kentucky Equine Research

Review Service

Professional Animal Scientist
Journal of Equine Veterinary Science
Journal of Animal Science
Review research proposals for North American Equine Ranching Information Council
Pfizer Linwood Equine Ranching Research Review committee
Technical reviewer for the magazine "The Horse"
Reviewer for the Saddle-Up Safely program

Committees

Board of Directors for the Certified Horsemanship Association
Kentucky Quarter Horse Board of Directors (Executive Committee President 2014)
American Quarter Horse Association Foundation Research committee
Equine Science Society finance committee chair for the 2011 and 2013 symposia
Equine Science Society Executive Secretary 2013 to present
American Society of Animal Science Equine Committee chair for 2013 meetings
Kentucky Farm Bureau Equine Advisory Committee

Board of Directors for the Kentucky Horse Council

Other Activities

External Examiner for a Ph.D. student in Gluck Research Center

Ben M. Goff
Department of Plant and Soil Sciences
University of Kentucky
N-222K Agriculture Science Center North
1100 Nicholasville Road
Lexington, KY 40546
(859) 257-5785
ben.goff@uky.edu

Education:

- **Ph.D. Crop Science, University of Kentucky (2012)**
 - Dissertation: Effects of grazing intensity and chemical seedhead suppression on tall fescue pasture and steer productivity.
 - Minor: Plant Physiology

- **M.S. Agronomy, Iowa State University (2010)**
 - Thesis: Double-cropping sorghum for biomass production.
 - Minor: Biochemistry

- **B.S. Agronomy, West Virginia University (2007)**
 - Manga cum laude

Professional Experience:

- Assistant professor, University of Kentucky, 2012-present.
- Graduate research assistant, University of Kentucky, 2010-2012.
- Graduate research assistant, Iowa State University, 2007-2010.
- Cartographic technician, NRCS Geospatial Research Unit, 2007.
- Undergraduate research assistant, West Virginia University, 2005-2006.

Professional Organizations:

- American Society of Agronomy
- American Forage and Grassland Council
- Crop Science Society of America
- Gamma Sigma Delta
- Kentucky Forage and Grassland Council
- National Association of Equine Affiliated Academics

Professional/Service Activities:

Committees Served

Professional

- National Forage Bowl Planning Committee, American Forage and Grassland Council, 2014-Present.
- Multi-state Hatch (NC-1182) New Project Planning Committee, NIFA, 2013-2014.
- Graduate student subcommittee (ACS 237.1), American Society of Agronomy, 2011-2012.

University

- Plant and Soil Science Undergraduate Program Steering Committee, University of Kentucky, 2014-Present.
- Equine Science and Management Steering Committee, University of Kentucky, 2013-Present.
- Equine Program Council, University of Kentucky, 2013-Present.

Departmental

- Position Search Committee (*Agroclimatology & Ag-Systems Modeling*), University of Kentucky, 2014-Present.
- Job Description Writing Committee (*Grain Crop Systems Agronomy, Ecology, & Physiology*), University of Kentucky, 2013.

Other Service Activities

- Participate in departmental new student mentoring program, 2014-Present.
- Organizer of University of Kentucky Student Forage Tour, 2014-Present.
- Judge of 2014 University of Kentucky Animal and Food Science Graduate Association Research Symposium
- Judge of Robert F. Barnes Graduate Student Paper Competition at 2013 ASA-CSSA-SSSA Annual Meetings. Tampa, FL. Nov. 3-6.
- Judge of 2013 University of Kentucky Integrated Plant and Soil Science Graduate Student Research Symposium.
- Moderator of “General Forage and Grazinglands: I” session at 2013 ASA-CSSA-SSSA Annual Meetings. Tampa, FL. Nov. 3-6.
- Peer reviewer for *African Journal of Biotechnology, Agronomy Journal, Bioresources, Crop Science, Forage and Grazinglands, Journal of Agriculture and Food Chemistry, Journal of Animal Science, Soil and Tillage Research.*

Awards and Honors:

- Nominated for Ken Freedman Outstanding Advisor Award, University of Kentucky, 2014.
- Gerald O. Mott Meritorious Graduate Student Award, American Society of America, 2012.
- 3rd Place, Emerging Scientist Competition, American Forage and Grasslands Council, 2012.
- Research Excellence Award, Iowa State University, 2010.
- Gustav-Gertrude-Peter C. Seeck Fellowship, Iowa State University, 2007-2009.
- Pest Control Operators Association of West Virginia Scholarship, West Virginia University, 2005-2006.
- Promise Scholar, West Virginia University, 2003-2007.

Teaching Experience:

Primary Instructor

- PLS 510, Forage Management and Utilization, 2013-Present
- GEN 300, Introduction to Forage-Livestock Systems/Forage Bowl, 2013-Present
- PLS 597, Agricultural Experimental Design and Analysis, 2014-Present

Guest Lecturer

- ASC 382, Animal Production Principles (*Forage-Livestock Systems*), University of Kentucky, 2012.
- ASC 406, Beef Production (*Pasture Improvement & Establishment*), University of Kentucky, 2013.
- PLS 404, Integrated Weed Management (*Grassland Ecology*), University of Kentucky, 2012-present.

Teaching Assistant

- AGRON 526, Field Plot Technique, Iowa State University, 2010.
- AGRON 154, Fundamentals of Soil Science, Iowa State University, 2007-2009.
- AGRN 452, Grain and Special Crops, West Virginia University, 2006.

Advising:

Graduate students

- Payne, K.M. Enhanced efficiency fertilizers on productivity and nutritive value of grass-legume pastures. Ph.D. Candidate. *Pending*
- Timberlake, C.E. Effects of urea formulation on white clover persistence in bermudagrass pastures. M.S. Candidate. *Pending*.
- Simon, M.M. Forage species selection for the renovating over-grazed pastures following a drought. M.S. (Non-thesis option). 2014.
- Faculty member on graduate committee for 2 Ph.D. and 4 M.S. students

Undergraduate students

- Bill, V.T. Plant growth regulators and N fertilization on the partitioning of red clover growth. *Pending*.
- Tapp, M.D. Forage species preference of calves in creep grazing systems. *Pending*.
- Langlois, E.K. Polyphenol oxidase activity and soluble phenolic effects on legume protein quality. 2014
- Faculty advisor for University of Kentucky forage bowl teams. 2013-present.

Invited Presentations:

Extension

- **Goff, B.M.** 2014. The role and importance of forage legumes in pastures. Kentucky Grazing Conference. Bowling Green, KY. 23 Oct.
- **Goff, B.M.** 2014. Forage legumes: Their importance and management in profitable livestock systems. USDA StrikeForce Initiative for Rural Growth and Opportunities. Ellenboro, WV. 17 July.

- **Goff, B.M.** 2013. Managing for long-term profitability in grass-clover pastures. University of Kentucky Advanced Grazing School. Princeton, KY. 18 June.
- **Goff, B.** and G. Aiken. 2011. Seedhead suppression of tall fescue. Kentucky Forage and Grasslands Council Field Day. Versailles, KY. 8 Sept.
- **Goff, B.M.,** G.E. Aiken, and W.W. Witt. 2011. Suppression of reproductive growth of tall fescue with Chaparral. University of Kentucky/DowAgrosciences/USDA-ARS Field Day. Versailles, KY. 23 June.
- **Goff, B.M.** and E.A. Heaton. 2008. Sugar crops for ethanol production. Muscatine Sugar Beet Field Day, Muscatine, IA. 25 Sept.

Trainings & Workshops

- **Goff, B.M.** 2013. Pasture composition. National Resource Conservation Service Workshop: Communicating Grazing. Richmond, KY. 22 Aug.
- **Goff, B.M.** 2013. Pasture stage of growth. National Resource Conservation Service Workshop: Communicating Grazing. Richmond, KY. 22 Aug.

Miscellaneous

- **Goff, B.M.** 2014. Forage production, utilization, and management. University of Kentucky Undergraduate Plant and Soil Science Field Day. 18 Sept.
- **Goff, B.M.** 2014. Forages. Hope Hill STEM Project Student Tour. 7 July.
- **Goff, B.M.** 2013. UK forage legume research update. DowAgrosciences Pasture Summit. 15-16 Oct.
- **Goff, B.M.,** G.E. Aiken, and W.W. Witt. 2012. Effects of grazing intensity and chemical seedhead suppression on steers grazing tall fescue pastures. DowAgrosciences Pasture Summit. 1-3 Oct.
- **Goff, B.** and G. Aiken. 2011. Chaparral herbicide stocking rate study. DowAgrosciences Pasture Summit. 11 Oct.

Funding:

Extramural funding

Grants:

- **Goff, B.M.** 2014. Enhanced efficiency nitrogen fertilizers on the production and nutritive value of bermudagrass pastures. Koch Agronomic Services, LLC. (*Nationally Competitive*). \$5,490.
- van Santen, E.S., J.W. MacAdam, K.A. Cassida, G.E. Shewmaker, **B.M. Goff**, R.L. Kallenbach, T.C. Griggs, and J.M. Johnson. 2013-2017. Increasing legume grazing for higher beef gain on pastures: an improved high-tannin birdsfoot trefoil cultivar with trans-regional potential. USDA NIFA-AFRI (*Nationally Competitive*). \$402,500.

Gifts:

- **Goff, B.M.** 2013. PLS Forage Teaching/Forage Bowl. Various Industry and Commodity Sponsors. \$3,300

Pending Proposals

- Hannaway, D.B., M.G. Bohle, L.M. Lauriault, **B.M. Goff**. 2014. Improving alfalfa cultivar selection by GIS mapping of fall dormancy and winter survival index zones and modeling seasonal and annual yield. USDA NIFA-NAFA. (*Nationally Competitive*). \$165,000.
- Wendroth, O. and B.M. Goff. 2013-2016. Nitrogen, carbon and soil water dynamics in grazed pasture systems – small-scale heterogeneity protects water quality and reduces nitrogen losses. USDA NIFA-AFRI (*Nationally Competitive*). \$499,579.

Proposals submitted

- **Goff, B.M.** 2014. The interaction of ergot alkaloids and forage tannins in ruminant digestive systems. University of Kentucky (*Vice President of Research Support Grant*). \$33,701. (Unfunded).
- **Goff, B.M.** 2013-2015. Improving cool-season grass pastures through interseeding legume mixtures with various levels of complexity. USDA SARE (*Regionally Competitive*). \$14,980. (Unfunded).
- **Goff, B.M.** 2013-2015. Method of interseeding and grazing frequency effects on red clover nodulation and nitrogen fixation in pastures. USDA SARE (*Regionally Competitive*). \$14,978. (Unfunded).
- **Goff, B.M.** 2013-2015. Sustainable management practices for the introduction of birdsfoot trefoil into cool-season grass pastures. USDA SARE (*Regionally Competitive*). \$15,000. (Unfunded).
- **Goff, B.M.** 2013-2014. The effect of probe tip and power source on sampling repeatability and estimated nutritive value of alfalfa hay. National Forage Testing Association (*Nationally Competitive*). \$8,353. (Unfunded).
- **Goff, B.M.**, C.E. Timberlake, J.H. Grove and G. Munshaw. The effects of slow-release nitrogen fertilizers on white clover persistence in bermudagrass pastures. Koch Agronomic Services, LLC. (*Nationally Competitive*). \$14,879. (Unfunded).
- **Goff, B.M.**, S.L. Hall, and S. Ray Smith. 2013-2017. Interseeding introduced and native legume species into eastern gamagrass pastures for sustainable grazing systems. USDA SARE (*Regionally Competitive*). \$256,786. (Unfunded).
- Wendroth, O. and **B.M. Goff**. 2013-2016. Nitrogen, carbon and soil water dynamics in grazed pasture systems – small-scale heterogeneity protects water quality and reduces nitrogen losses. USDA NIFA-AFRI (*Nationally Competitive*). \$499,579. (Unfunded).

Publications

Refereed Journal

- **Goff, B.M.**, G.E. Aiken, W.W. Witt, J.A. Williamson, E.S. Flynn, and P.L. Burch. 2014. Timing and rate of Chaparral treatment affects tall fescue seedhead development and pasture grass plant densities. Online. Forage and Grazinglands. Doi: 10.2134/FG-2013-0001-RS.
- Flythe, M.D., B. Harrison, I.A. Kagan, J.L. Klotz, G.L. Gellin, **B.M. Goff**, and G.E. Aiken. 2013. Antimicrobial activity of red clover (*Trifolium pratense* L.) extract on caprine hyper ammonia-producing bacteria. Agric. Food Anal. Bacteriol. 3: 176-185.

- **Goff, B.M.**, G.E. Aiken, W.W. Witt, B.B. Sleugh, and P. L. Burch. 2012. Steer consumption and ergovaline recovery from in vitro digested residues of tall fescue seedheads. *Crop Sci.* 52: 1437-1440.
- Aiken, G.E., **B.M. Goff**, W.W. Witt, B.B. Sleugh, and P.L. Burch. 2012. Steer and plant responses to chemical suppression of seedhead emergence in toxic endophyte-infected tall fescue. *Crop Sci.* 52: 960-969.
- **Goff, B.M.**, P.T. Murphy, and K.J. Moore. 2012. Comparison of common lignin methods and modifications on forage and lignocelulosic materials. *J. Sci. Food. Agr.* 92: 751-758.
- **Goff, B. M.**, Moore, K. J., Waramit, N., and Fales, S. L. 2011. Morphological development affects the prussic acid potential of ‘Rumsey’ indiagrass. Online. Forage and Grazinglands doi: 10.1094/FG-2011-1004-01-BR.
- **Goff, B.M.**, K.J. Moore, S.L. Fales, and J.F. Pedersen. 2011. Comparison of the use of gas chromatography, spectrophotometry, and near infrared spectroscopy to quantify prussic acid potential in forages. *J. Sci. Food Agric.* 91: 1523-1526.
- **Goff, B.M.**, K.J. Moore, S.L. Fales, and E.A. Heaton. 2010. Double-cropping sorghum for biomass production. *Agron. J.* 102: 1586-1592.

Non-refereed

- **Goff, B.M.** 2014. The role and importance of forage legumes in pastures. In. Proc. Of 15th Kentucky Grazing Conference. Bowling Green, KY. 23 Oct.
- **Goff, B.M.**, G.E. Aiken, W.W. Witt, P.L. Burch, and B.B. Sleugh. 2012. Effects of grazing intensity and chemical seedhead suppression on steers grazing tall fescue pastures. In Proc. American Forage and Grassland Conference, Louisville, KY. 9-11 Jan.
- **Goff, B.M.**, G.E. Aiken, and W.W. Witt. 2011. Ergovaline recovery from digested residues of grazed tall fescue seedheads. In Proc. American Forage and Grassland Conference, French Lick, IN. 12-15 June.
- Aiken, G.E., W.W. Witt, **B.M. Goff**, and I.A. Kagan. 2011. Chemical suppression of seedhead emergence in toxic endophyte-infected tall fescue for improving cattle weight gain and physiology. In Proc. American Forage and Grassland Conference, French Lick, IN. 12-15 June.

Miscellaneous

- **Goff, B.M.**, G.E. Aiken, and W.W. Witt. 2013. Ergovaline recovery from digested tall fescue seed heads. 2012 Research and Extension Beef Report. SR-105. University of Kentucky. Agricultural Experiment Station, Lexington, KY.
- Aiken, G.E., W.W. Witt, **B.M. Goff**, and I.A. Kagan. 2013. Chemical suppression of seed head emergence in toxic endophyte-infected tall fescue pastures. 2012 Research and Extension Beef Report. SR-105. University of Kentucky. Agricultural Experiment Station, Lexington, KY.

- Klotz, J.L., G.E. Aiken, A.P. Foote, J.R. Bussard, K.R. Brown, **B.M. Goff**, D.L. Harmon, and J.R. Strickland. 2013. Vascular activity increases with time off tall fescue. 2012 Research and Extension Beef Report. SR-105. University of Kentucky. Agricultural Experiment Station, Lexington, KY.
- **Goff, B.**, K. Moore, S. Fales, and E. Heaton. 2009. Potential for sorghum genotypes in a double-cropping system. In Annual Progress Reports - Northwest Research Farm and Allee Demonstration Farm. ISRF09-29. Iowa State University. Cooperative Extension Service, Ames, IA.

Abstracts

- Bill, V.T., B.M. Hadley, **B.M. Goff**, L.C. Harris, and S.R. Smith. 2014. Plant growth regulators and N fertilization on the partitioning of red clover growth. ASA-CSSA-SSSA Annual Meetings. Long Beach, CA. Nov. 2-5.
- Timberlake, C.E., **B.M. Goff**, G.C. Munshaw, and J.H. Grove. 2014. Enhanced efficiency N fertilizers on the production and nutritive value of bermudagrass pastures. ASA-CSSA-SSSA Annual Meetings. Long Beach, CA. Nov. 2-5.
- Timberlake, C.E., **B.M. Goff**, J.H. Grove, and G.C. Munshaw. 2014. Effects of urea formulation on bermudagrass pasture growth. In Proc. American Forage and Grassland Conference, Memphis, TN. Jan. 12-14.
- **Goff, B.M.**, L.C. Harris, G.O. Olson, and S.R. Smith. 2013. Effect of native warm-season grass canopy development and characteristics on the establishment and production of forage legumes. ASA-CSSA-SSSA Annual Meetings. Tampa, FL. Nov. 3-6.
- **Goff, B.M.**, C.E. Timberlake, E.K. Langlois, M.P. de Kanter, and L.C. Harris. 2013. Incorporating legumes into teff as an emergency source of forage. ASA-CSSA-SSSA Annual Meetings. Tampa, FL. Nov. 3-6.
- **Goff, B.M.**, G.E. Aiken, W.W. Witt, P.L. Burch, and E.S. Flynn. 2013. Steer and tall fescue pasture responses to grazing intensity and chemical seedhead suppression. In Proc. American Forage and Grassland Conference, Covington, KY. Jan. 6-8.
- **Goff, B.M.**, G.E. Aiken, W.W. Witt, and P.L. Burch. 2012. Effects of grazing intensity and chemical seedhead suppression on steers grazing tall fescue pastures. ASA-CSSA-SSSA Annual Meetings. Cincinnati, OH. Oct. 21-24.
- Bussard, J.R., G.E. Aiken, J.R. Strickland, K.R. Brown, **B.M. Goff**, A.P. Foote, and J.L. Klotz. 2012. Changes in vasculature contraction and constriction in cattle relative to time-off endophyte-infected tall fescue. ASAS/ADSA Annual Meetings, Phoenix, AZ. July 15-19.
- Klotz, J.L., J.R. Bussard, G.E. Aiken, A.P. Foote, D.L. Harmon, K.R. Brown, **B.M. Goff**, and J.R. Strickland. 2012. Lateral saphenous vein response to serotonergic and α -adrenergic receptor agonists changes relative to time off endophyte-infected tall fescue. ASAS/ADSA Annual Meetings, Phoenix, AZ. July 15-19.

- Bussard, J.R., G.E. Aiken, J.R. Strickland, K.R. Brown, **B.M. Goff**, A.P. Foote, and J.L. Klotz. 2012. Changes in vasculature contraction and constriction in cattle relative to time-off endophyte-infected tall fescue. In Proc. American Forage and Grassland Conference, Louisville, KY. Jan 9-11.
- Aiken, G.E., **B.M. Goff**, W.W. Witt, and I.A. Kagan. 2011. Chemical suppression of reproductive development in endophyte-infected tall fescue for improving cattle weight gain and physiology. ASA-CSSA-SSSA Annual Meetings. San Antonio, TX. Oct. 16-19.
- **Goff, B.M.**, G.E. Aiken, and W.W. Witt. 2011. Ergovaline recovery from digested residues of grazed tall fescue seedheads. ASA-CSSA-SSSA Annual Meetings. San Antonio, TX. Oct. 16-19.
- Flythe, M.D., I.E. Kagan, G.L. Gellin, **B.M. Goff**, G.E. Aiken, and P.R. Cheeke. 2011. Plant phenolic compounds that modulate amino acid- and peptide- catabolism by caprine rumen microbes. ASM Annual Meetings. New Orleans, LA. May 21-24.
- Klotz, J.L., G.E. Aiken, A.P. Foote, L.P. Bush, K.R. Brown, **B.M. Goff**, and J.R. Strickland. 2011. Contractile response to ergovaline, 5-hydroxytryptamine_{2A}, α _{2A}-, and α _{2C}-adrenergic receptor agonists relative to time off of endophyte-infected tall fescue. ASAS/ADSA Annual Meetings, New Orleans, LA. July 10-14.
- **Goff, B.M.**, K.J. Moore, S.L. Fales, and E.A. Heaton. 2009. The potential of a double cropping system for biomass production. ASA-CSSA-SSSA Annual Meetings. Pittsburgh, PA. Nov. 1-5.
- **Goff, B.M.**, K.J. Moore, and S.L. Fales. 2008. The potential of a double cropping system for biomass production. Biobased Industry Outlook Conference. Ames, IA. Sept. 7-10.
- **Goff, B.M.**, L.M. McDonald, and E.M. Pena-Yewtukhiw. 2006. The explicit effects of water content and bulk density on TDR response. ASA-CSSA-SSSA Annual Meetings. Indianapolis, IN. Nov. 12-16.

Elizabeth A. LaBonty, M.S.

Title: Lecturer and Internship Coordinator

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EDUCATION

- PhD (in progress), University of Kentucky
College of Education
Specialization: Department of Educational Policy Studies and Evaluation
- Masters of Science, University of California-Davis, June 2006
Discipline: Animal Biology
Specialization: Equine Reproductive Physiology, Animal Assisted Therapy
- Bachelors of Science, University of Nebraska-Lincoln, December 2002
Major: Animal Science
Specialization: Breeding and Genetics
- Artificial Insemination Certification, ABS Global, 2002

TEACHING EXPERIENCE

- Lecturer and Internship Coordinator, University of Kentucky 2009 – present
 - Developed and instruct: Intro to Equine Science, Thoroughbred Sales, Equine Event Planning, Intro to Equine Careers, Equine Career Prep
 - Coordinate Internship Program (placing, evaluating, and grading 50-75 interns/year)
 - Supervise undergraduate research projects (27)
- Program Coordinator & Equine Instructor, Bluegrass Community College 2008 – 2009
 - Developed and instructed
 - Intro to Equine Science, Equine Physiology, Equine Reproduction
 - Equine Lameness, Equine Bloodstock, Intro to Breaking and Training
 - General Biology
 - Authored two new Diplomas, two new courses, and one new Degree
 - Coordinated internships, internal and external service
- Equine Instructor, Laramie County Community College 2005 – 2008
 - Develop and instructed
 - Equine Science I & II (Internal and External Anatomy & Physiology)
 - Equine Health Management, Equine Business Law
 - Equine Reproductions, Equine Seminar, Equine Sales and Service
 - Basic Training and Management, Advanced Training Techniques
 - Green Horse Green Rider, Basic Horsemanship
 - Coordinated internships, advised students, wrote grants, served on committees
 - Co-Adviser Block and Bridle
 - Supervised and hosted state FFA and 4-H Horse Judging competitions

PRESENTATIONS

International

- Presented at 10th International Conference on New Directions in the Humanities Workshop: *The Community is Our Classroom: Service Learning in College Classes*, Montreal, Canada, J. L. LaBonty and E. A. LaBonty
2012

National

- Co-Presenter at Uniting Higher Education and EAAT Conference: *Uniting Equine Assisted Activities and Higher Education through Service Learning and Internships*, E. A. LaBonty and A. S. Lawyer 2014
- Presented at National Social Science Association Fall Conference: *The 21st Century College Classroom*, E. A. LaBonty and J. L. LaBonty 2013

- Presented, Equine Career Fair: Uniting Students and the Industry for the Future, E. LaBonty, S. Coleman, NAEAA 2012
- Presented, 2012 Pilot Project Participants, R. Coleman, E. LaBonty, NAEAA 2012
- WUKY, Radio Guest – Equine Career Fair Promo 2012
- WUKY, Radio Guest – Race Day Medications Discussion 2012
- Presented, “2010 Kentucky Equine Youth Festival: How to create an Event that will bring 6,000 people”, F. Camargo, E. LaBonty, ESS 2011

SERVICE

- Advisor, UK Rodeo Team 2012 - present
- Equine Initiative/Ag Equine Programs, Executive Committee member 2011 - present
- Coordinator - Equine Career Fair, UK 2009, 2010, 2011, 2012
- Coordinator, 5 EI Clubs & Teams Meeting, UK 2011-2012
- Coordinator, Annual Equine Internship Reception, UK 2011, 2012
- Student Behavior Committee, AFS Department 2012
- Ag Equine Programs, Booth Volunteer, Round up 2010- 2012
- Ag Equine Programs, Booth Volunteer, Rolex 2010 - 2012
- ANFS Professional Advisor Planning Committee, UK 2011
- GEN 100/200 Equine Program Representative, UK 2010, 2011
- Strategic Planning Committee, Goal 1, UK 2010
- Lecture Series Faculty Evaluation Committee, UK 2010 - 2011
- Student Volunteer Coordinator, Alltech National Horse Show 2011

GRANTS

- UK Education Abroad Site Visit Grant (Fully Funded) 2014
- Barnhart Fund for Excellence Award with Kristen Wilson (Fully Funded) 2013
- Teaching Incentive and Improvement Fund, Development of two new courses (Thoroughbred Sales and Equine Event Planning), (Fully Funded) 2012
- UK Service-Learning Mini Grant Application 2011

HONORS & AWARDS

- A Teacher Who Made a Difference Award, UK College of Education 2014
- Kappa Delta Pi Education Honor Society, Inductee 2013
- Gamma Sigma Delta Agriculture Honor Society, Inductee 2012
- Accepted: Academy of Teaching and Learning Scholars Program, UK 2010
- Outstanding Faculty, Scholarship Recognition Luncheon, LCCC 2006

PUBLICATIONS

- Jan L. LaBonty and Elizabeth A. LaBonty, *The Community is Our Classroom: Service Learning in College Classrooms*, The International Journal of Humanities Education, 2013
- Fernanda C. Camargo and Elizabeth A. LaBonty, *2010 Kentucky Equine Youth Festival: How to create an event that will bring 6,000 people*, Journal of Equine Veterinary Science, (31)5,6:342-343, 2011
- Elizabeth A. LaBonty and Tim C. Capps, *Collaboration in Action: Equine Business meets Science*, Bluegrass Equine Digest, 2011
- Elizabeth A. LaBonty, *Welcome address*, Wildcat Canter, January, 2011
- Elizabeth A. LaBonty, *Welcome address*, , Wildcat Canter, May, 2011
- Elizabeth A. LaBonty, *Community Service Project Summary*, Wildcat Canter, September, 2011
- Elizabeth A. LaBonty, *When Two Worlds Collide: Examining the role of internships in building effective relationships between equine academics and the equine industry*, NAEAA, 2010
- E. A. LaBonty, B. A. Ball, and K. Sabeur, *Characterization of a sperm protein responsible for sperm reservoir formation in the oviduct of the mare*, Center for Equine Health Research Review, 29, Davis CA: University of California-Davis, 2005
- Elizabeth A. LaBonty, *Tom Reed*, Laurus Literary Magazine, Lincoln NE: University of Nebraska Press, 2000

Laurie Lawrence, Ph.D.; Provost's Distinguished Service Professor
Department of Animal and Food Sciences, University of Kentucky, Lexington KY 40546
859-257-7509; 859-323-1027(fax); llawrenc@uky.edu

EDUCATION

Institution and Location	Degree	Year Conferred	Field
Cornell University, Ithaca, NY	B.S.	1975	Animal Science
Colorado State University	M.S.	1978	Animal Nutrition
Colorado State University Ft. Collins CO	Ph.D	1982	Animal Nutrition

PROFESSIONAL EXPERIENCE (Employment and Service):

Assistant Professor, University of Illinois, 1981-1987
Associate Professor, University of Illinois, 1987-1992
Associate Professor, University of Kentucky, 1992-1997
Professor, University of Kentucky, 1997-present
Provost's Distinguished Service Professor, University of Kentucky, 2012-present
Director, Board of National Association of Equine Affiliated Academics, 2008-present
Chair, National Research Council Subcommittee on Horse Nutrition, 2004-2007
Subcommittee Chair (Horse Section), Committee for Standard on Manure Production & Characteristics, American Society of Ag. Eng., 2002
Organizing and Program Committee, International Conference on Equine Exercise Physiology (ICEEP), 2000-02
Director and Recording Secretary, Board of American Society of Animal Science (1999- 2001)
President, Equine Nutrition and Physiology Society, 1993-95
Editorial Board, Journal of Animal Science 1992-94, 2002-05; 2012-2015
Director, Board of Kentucky Equine Management Internship, 2000-present

CURRENT FUNDED PROJECTS (AS PRINCIPAL INVESTIGATOR):

Dietary mitigation of antibiotic induced changes in equine gastrointestinal bacteria. Kentucky Racing Commission. 2013-2015; \$88,000
Effect of starch source on equine digestive health. Prairie Oat Growers Assoc. 2013-2015; \$122,000
Factors affecting carbohydrates and secondary metabolites in pasture. SCA – USDA/ARS. 2013-2016 \$82,000
Effect of maternal diet on gastrointestinal bacteria of foals. SCA – USDA/ARS;2013-2015; \$64,000

TEACHING RESPONSIBILITIES AND COURSE EVALUATIONS (2012-14)

ASC 311: Advanced Horse Evaluation (Evals: 2013: 3.8 Course, 4.0 Teaching)
ASC 389: Appl. Eq. Nutr. & Feeding (Evals; 2012, 3.7 C; 3.8 T; 2013, 3.8 C , 4.0 T; 2014, 4.0 C ,4.0 T)
ASC 688: Equine Nutrition (Course Eval; 2012, 3.6 C, 4.0 T)

RECENT AND RELEVANT PUBLICATIONS: (peer reviewed or invited only; *indicates first author was graduate student advised by L. Lawrence)

- *Harlow, B.E., L.M. Lawrence, I.A. Kagan, I.A., M. D. Flythe. 2014. Inhibition of fructan-fermenting equine fecal bacteria and *Streptococcus bovis* by hops (*Humulus lupulus* L.) beta-acid. *J. Applied Microbiology* (In press).
- Pratt-Phillips, S. and L.M. Lawrence. 2014. Nutrition of the performance horse. In, The Athletic Horse, D. Hodgson, K. McKeever, eds. Elsevier Publishing. Pp 35-55.
- *Brummer, M., S. Hayes, A.A. Adams, D.W. Horohov, K.A. Dawson and L.M. Lawrence. 2013. The effect of selenium supplementation on vaccination response and immune function in adult horses. *J Anim Sci* 91:3702-15.
- *Brummer, M., S. Hayes, K. A. Dawson, and L. M. Lawrence. 2013. Measures of antioxidant status of the horse in response to selenium depletion and repletion. *J. Anim. Sci.* 91:2158-2168
- *Earing, J.E., L. M. Lawrence, S. H. Hayes, M. Brummer, and E. Vanzant. 2013. Digestive capacity in weanling and mature horses. *J. Anim Sci.* 91:2151-2157
- *Harlow, B.E., L.M. Lawrence and M.D. Flythe. 2013. Diarrhea-associated pathogens, lactobacilli and cellulolytic bacteria in equine feces: Responses to antibiotic challenge. *Veterinary Microbiology.* 166:225-32
- Lawrence, L. 2013. Feeding stallions and broodmares. In, Equine Clinical and Applied Nutrition, R. Geor and P. Harris, eds. Elsevier Publishing. Pp231-242.
- McDowell, K., E.S. Moore, A.G. Parks, L.P Bush, D. Horohov and L.M. Lawrence. 2013. Vasoconstriction in horses caused by endophyte-infected tall fescue seed is detected with Doppler ultrasonography *J. Anim Sci.* 91: 1677-1684
- Urschel, K.L. and L.M. Lawrence. 2013. Proteins and amino acids. In, Equine Clinical and Applied Nutrition, R. Geor and P. Harris, eds. Elsevier Publishing. Pp113-135.
- *Brummer, M., S. Hayes, B.E. Harlow, L.A. Strasinger, K.A. Dawson, D.W. Horohov and L.M. Lawrence. 2012. Effect of selenium status on the response of unfit horses to exercise. *Comparative Exercise Physiology.* 8:203-212.
- *Earing JE, A. Durig, G.L. Gellin, L.M. Lawrence and M.D. Flythe. 2012. Bacterial colonization of the equine gut; comparison of mare and foal pairs by PCR-DGGE. *Adv. in Microbiol.* 2: 79-86
- Lawrence, L. 2012. Nutritional management on the Breeding Farm. In Veterinary Clinical Advisor: Equine., D.Wilson, Ed., Elsevier. Pp776-778.
- * McCown, S., M. Brummer, S. Hayes, G. Olson, S. R. Smith, Jr., L. Lawrence. 2012. Acceptability of teff hay by horses. *J. Equine Vet. Sci.* 32:327-331.
- *Earing, J. E., B. D. Cassill, S. H. Hayes, E. S. Vanzant, and L. M. Lawrence. 2010. Comparison of in vitro digestibility estimates using the Daisy^{II} Incubator to in vivo digestibility estimates in horses. *J. Anim Sci.* 88:3954-3963.
- Lawrence, L.M.. 2009. Updates to the nutrient requirements of the horse: NRC 2007. In, Current Therapy in Equine Medicine 6. N.E. Robinson and K. Sprayberry, ed. P66-72.
- *Ringler, J. and L.M. Lawrence. 2008. Comparison of thoroughbred growth data to body weights predicted by the NRC. *J. Equine Vet. Science.* 28:97-101
- National Research Council. 2007. Nutrient Requirements of Horses. National Academy Press, Washington D.C.(Chair of subcommittee and primary author of two chapters)
- *O'Connor, C.I., L.M. Lawrence, and S.H. Hayes. 2007. Dietary fish oil supplementation affects serum fatty acid concentrations in horses. *J. Anim. Sci.* 85:2183-2189.

K. Amy Lawyer
(Formerly K. Amy Summers)
amy.lawyer@uky.edu

Education:

PhD, Educational Sciences Leadership Studies, University of Kentucky, anticipated graduation: 2015

Concentration: Leadership Development

Courses include: Leadership in Educational Organizations, Knowledge Base for Leaders, Leading Organizational Change, Higher Education and Athletics, among others

Masters of Science, Animal Science, Colorado State University, 2008

Concentration: Equine Reproduction

Thesis: The possible replication and transmission of the modified-live Equine Viral Arteritis vaccine virus to non-vaccinated animals

Bachelors of Science, with Honors, Business Administration, University of Louisville, 2006

Concentration: Equine Business Major, Marketing Minor

Experience:

- Equine Extension Associate 2011-Present
University of Kentucky
- Sr. Program Coordinator, Equine Business Program 2009-2011
University of Louisville
- Veterinary Technician
Hagyard Equine Medical Institute
- Broodmare Foreman
Three Chimneys Farm, Thoroughbred Breeding
- Teaching Assistant
Colorado State University

Teaching experience:

- ASC 310: Equine Anatomy and Conformation-University of Kentucky, 2013-2014
- EQM 101: Introduction to Horse Science-University of Louisville, 2009 & 2010
- ANEQ 344: Equine Reproduction Lab-Colorado State University, Teaching Assistant, 2008
- ANEQ 386: Equine Practicum-Equine Reproductive Management-Colorado State University, Teaching Assistant, 2007 & 2008

Presentations:

- "Volunteer Leader Certification Program: Insuring quality in your youth program." American Youth Horse Council Symposium, 2013.
- "Character Development and Sportsmanship through Horses" Kentucky Round-Up, Kentucky Horse Council, 2013.
- "Ethics in the 4-H Horse Program: Making sound decisions when working with youth." 4-H Volunteer Leader Certification Workshop, 2011-2012.
- "Teaching Sportsmanship" 4-H Volunteer Forum, 2012.
- "Winterizing your Horse" District 4 4-H Awards Banquet, 2012.
- "The Goals and Objectives of the Kentucky 4-H Horse Program" American Saddlebred Youth Convention, 2012.
- "An Overview of the Horse Industry" Family Career and Community Leaders of America Regional Meeting, 2010.
- "The possible replication and transmission of the modified-live Equine Viral Arteritis vaccine virus to non-vaccinated animals" Swift Seminar for Graduate Student Original Research, 2008.

- “Current Issues: Steroid use in Athletes, and how to make good decisions.”
Served on panel of experts Denver, CO area High School Athletes Forum, 2008.

Publications:

Camargo, F.C., Lawyer, K.A., Willis, C., Bott, R.C. (2014). Comparative analysis of state 4-H horse programs. *Journal of Animal Science* vol. 92 supplement 2 March, p. 22

Camargo, F.C., Lawyer, K.A., & Timoney, P.J. (2011). Equine Viral Arteritis. *University of Kentucky College of Agriculture Cooperative Extension Service Fact Sheet*, ID-197. Retrieved from <http://www.ca.uky.edu/agc/pubs/id/id197/id197.pdf>

Summers-Lawyer, K. A., Go, Y. Y., Lu, Z., Timoney, P. J., McCue, P. M., Zhang, J., Shuck, K. M., Bruemmer, J. (2011) Response of Stallions to Primary Immunization with a Modified Live Equine Viral Arteritis Vaccine. *Journal of Equine Veterinary Science* vol. 31 issue 3 March, P.129-138

Summers, K. A. (2008). *Evaluation of a modified-live equine viral arteritis vaccine.*

Saddle Up Safely, Barn Safety Manual, Contributing Author

Saddle Up Safely, Pasture Safety Manual, Contributing Author

Radio Recordings:

- “Body condition scoring your horse”. Agricultural Communications, University of Kentucky, 2012.
- “Trailer safety”. Agricultural Communications, University of Kentucky, 2012.
- “Protecting horses from harsh weather conditions”. Agricultural Communications, University of Kentucky, 2011.

Awards:

- 2nd Place Swift Seminar, Competition for Original Graduate Research, Colorado State University
- Outstanding Senior Award for Equine Administration University of Louisville
- Academic All-American University of Louisville Softball
- Conference USA Commissioner’s Honor Roll
- Athletic Directors Honor Roll all eight undergraduate semesters

Affiliations/Organizations:

- Board of Directors, American Youth Horse Council
- Youth Committee Chair, American Youth Horse Council
- HorseQuest, eXtension
- Eastern National 4-H Horse Round-up, Hippology and Communications Committee
- Southern Regional 4-H Horse Championships Planning Committee
- Kentucky Equine Youth Festival Planning Committee
- Kentucky Horse Park, Kids Barn, Design and Development Committee
- Saddle-Up Safely, Publication Committee
- Kentucky Equine Higher Education Consortium

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PRACTICE SUMMARY

STITES & HARBISON, Lexington office
2006-present

EDUCATIONAL BACKGROUND

University of Kentucky College of Law
Lexington, Kentucky
J.D., 2006

University of Kentucky
Lexington, Kentucky
B.B.A., Finance, Minor in History, 2001

PUBLICATIONS AND PRESENTATIONS

"A Day in the Life," Who are our clients and what legal issues
arise every day for them?, 2007 University of Kentucky
Equine Law Seminar

"Written Way is the Only Way," with Robert W. Beck, Jr. and
David E. Longenecker, *Thoroughbred Times*, March 31,
2007

PROFESSIONAL ACTIVITIES

Kentucky Bar Association, Member

Young Lawyers Association of Kentucky Bar Association,
Member

American Bar Association, Member

RECENT ASSIGNMENTS

Represented seller in sale of grade two winning thoroughbred filly

Represented client to a successful settlement in an equine fraud
claim in federal court in Houston, Texas

Assisted national lender in refinance of multi-million dollar loans secured by equine collateral

Assisted in syndication of 5 stallions entering stud in 2007

Assisted in sale of partial interest in a Kentucky Derby contender in the days immediately prior to the Kentucky Derby

EQUINE INDUSTRY EXPERIENCE

Equine Account Manager, 2001-2003; Eaton Sales, Inc., Lexington, KY; advised clients in all areas of their thoroughbred horse holdings

Research Associate, 1997-2001, Eaton Sales, Inc., Lexington, KY; provided pedigree research for horses to be auctioned

Bid-Spotter and Announcer, 1997-2006; Fasig Tipton and TSE Tattersalls, Lexington, KY; spotted bids and announced pedigrees at thoroughbred and saddlebred auctions

Horse Groom, Summer, 2000; Calumet Farm, Lexington, KY; prepared yearling thoroughbreds for auction

Horse Groom & Maintenance, Summer, 1999; Fayette Park Stud, Tirau, New Zealand; worked in all aspects of running a thoroughbred farm

PERSONAL INFORMATION

RESIDENCE

3612 Humphrey Lane
Lexington, Kentucky 40502
(859) 312-5013

BIOGRAPHICAL SKETCH

Mary G. Rossano, Ph.D.

Professional Address: University of Kentucky
Department of Animal and Food Sciences
611 W.P. Garrigus Building
Lexington, KY 40546
Phone: (859) 257-7552
Fax: (859) 323-1027
E-mail: Mary.Rossano@uky.edu

Education:

<u>Institution:</u>	<u>Degree</u>	<u>Date</u>	<u>Field</u>
Michigan State University	Ph.D.	2003	Epidemiology/Parasitology
Michigan State University	M.S.	1999	Animal Science/Epidemiology
Michigan State University	B.S.	1994	Animal Science
Michigan State University	Cert.	1991	Horse Management

Current position:

7/13 – present Associate Professor, Department of Animal and Food Sciences, University of Kentucky. Currently 100% teaching. Instructor of equine science and animal science courses. Conduct parasitological research and assess student learning.

7/07 – 6/13 Assistant Professor, Department of Animal and Food Sciences, University of Kentucky. Average 80% teaching, 20% research. Instructor of equine science and animal science courses, and supervisor of 2 graduate students. Conducted parasitological research and assessed student learning.

Previous professional positions:

12/04 – 7/07 Project Director, FINS study (Effects of organochlorines on male infertility), Department of Epidemiology, College of Human Medicine, Michigan State University.

4/04 – 11/04: Postdoctoral Fellow at the Comparative Enteric Disease Laboratory, Michigan State University, under the direction of Dr. Linda Mansfield.

2/00- 12/03 Graduate Assistant at the Population Medicine Center, College of Veterinary Medicine, Michigan State University.

1/98- 2/00 Parasitology Research Aid, Animal Health Diagnostic Laboratory, Michigan State University.

Patents:

- 2000 **Immunoassay for equine protozoal myeloencephalitis in horses.** Linda S. Mansfield, Alice J. Murphy, Mary G. Rossano. U.S. patent number 6,153,394.
- 2002 **Antigen test to detect equine protozoal myeloencephalitis in horse serum and cerebrospinal fluid.** Linda S. Mansfield, Mary G. Rossano, Alice J. Murphy, Ruth A. Vrable. U.S. patent number 6,344,337.
- 2002 **Immunoassay for equine protozoal myeloencephalitis in horses.** Linda S. Mansfield, Alice J. Murphy, Mary G. Rossano. US patent number 6,489,148.
- 2008 **Vaccine to control equine protozoal myeloencephalitis in horses.** Linda S. Mansfield, Mary G. Rossano, Alice J. Murphy, Ruth A. Vrable. US patent number 7,390,492.

Recent research grants:

2011-13. \$300,000. Kentucky Agricultural Development Fund, Governor's Office of Agricultural Policy. **Growing Kentucky's Equine Economy: Establishing a Baseline with the Kentucky Equine Survey.** Ginny Grulke, [PI], C. Jill Stowe, Mary Rossano, Robert Coleman, Alison Davis, Timothy Capps, Leland Brown, Shawn Clark, Holly Weimers and Audrey Jarrett. Role: Co-investigator.

2010-14. \$466,074. USDA Higher Education Challenge Grant. **Enhancing Science Capacity in Introductory Animal, Plant, and Food Science Courses.** Knobloch, N. A. [PI], Hains, B. J. [Co-PI], Balschweid, M. A., Silvia, M., Rossano, M. Liceaga, A., Ballard, K., Orvis, K., Snyder, L., & Zanis, M. Dr. Bryan Hains is PI for \$139,500, sub-contracted through Purdue University for three years and heads the animal science education module. Role: Co-investigator.

Selected peer-reviewed publications (5 of 25 total):

1. Steffanie V. Burk, Sriveny Dangoudoubiyam, Tammy Brewster-Barnes, Uneeda K. Bryant, Eric S. Vanzant, Daniel K. Howe, Craig N. Carter, Robert J. Harmon, Kevin R. Kazacos, and Mary G. Rossano. **In vitro culture and initial investigation of *Parascaris equorum* excretory-secretory antigens.** *In press, Parasitology Research.*
2. Rossano, Mary G; Burk, Steffanie V. **Factors Associated with Student Performance in an Equine Management Course.** NACTA Journal 57.2 (Jun 2013): 11-15.
3. Steffanie V. Burk, Mary G. Rossano, William J. Silvia, Eric S. Vanzant, Anthony J. Pescatore and Robert J. Harmon. **Factors Associated with Course Withdrawal and Final Course Grade in an Introductory Animal Science Course.** NACTA Journal 57.2 (Jun 2013): 16-23.
4. JC Gould, MG Rossano, LM Lawrence SV Burk, RB Ennis and ET Lyons. **The effects of windrow composting on the viability of *Parascaris equorum* eggs.** Vet Parasitol. 2013 Jan 16;191(1-2):73-80.
5. Rossano MG, Smith AR, Lyons ET. **Shortened strongyle-type egg reappearance periods in naturally infected horses treated with moxidectin and failure of a larvicidal dose of fenbendazole to reduce fecal egg counts.** Vet Parasitol. 2010. Oct 29;173(3-4):349-52.

CURRICULUM VITAE

C. Jill Stowe

July 2014

Department of Agricultural Economics

University of Kentucky

Lexington, KY 40546-0276

Phone: (859)257-7256

Fax: (859)323-1913

E-mail: jill.stowe@uky.edu

Education: B.S. *summa cum laude*, Mathematics, Texas Tech University, 1997
Ph.D., Economics, Texas A&M University, May 2002

Employment:

May 2013 – present: Director of University of Kentucky Ag Equine Programs and Dickson Professor of Equine Science and Management; Associate Professor, Department of Agricultural Economics, University of Kentucky (joint appointment with Department of Economics)
(DOE: 50% administration, 40% research, 10% teaching)

Areas of Interest:

Equine markets, incentives in individual decision making, decision making under risk and ambiguity, sports economics

Teaching Experience, University of Kentucky

AEC 503, Price Theory and Applications, 2008 – 2013
AEC 300, Strategic Interaction in Agricultural Economics, 2013
AEC 302, Agricultural Management Principles, 2009, 2012
AEC 303, Microeconomic Concepts in Agricultural Economics, 2012, 2013
AEC 320, Agricultural Product Marketing and Sales, 2009, 2010, 2011
GEN 300, Equine Facility Design and Management, 2014
GEN 302, International Experience in Agriculture and Natural Resources: England Equine Industry, 2009

Publications:

Robert M, Hu W, Nielsen MK, Stowe CJ (2014). "Attitudes towards implementation of surveillance-based parasite control on Kentucky Thoroughbred farms – current strategies, awareness, and willingness-to-pay." Forthcoming, *Equine Veterinary Journal*.

Hughes S, Stowe CJ, Troedsson MHT, Squires EL. "The Athletic Performance of Thoroughbred Racehorses out of Mares Suspected of Placentitis during Gestation." *Journal of Equine Veterinary Science* (2013), doi: 10.1016/j.jevs.2013.11.002.

Plant, Emily and C. Jill Stowe. (2013) “The Price of Disclosure in the Thoroughbred Yearling Market.” *Journal of Agricultural and Applied Economics* 45:2, 1-15.

Stowe, C. Jill. (2013). “Breeding to Sell: A Hedonic Price Analysis of Leading Thoroughbred Stud Fees.” *Applied Economics* 45:7, 877-885.

Poerwanto, Devie and C. Jill Stowe. (2010). “The Relationship Between Sire Representation and Average Yearling Price in the Thoroughbred Industry.” *Journal of Agribusiness* 28(1), 61-74.

Stowe, C. Jill and Billy Ajello. (2010). “A Hedonic Price Analysis of Differentiated Products of Unknown Quality: Freshman Sire Stud Fees in the Thoroughbred Breeding Industry.” *Journal of Agribusiness* 28(1), 19-30.

Stowe, C. Jill and Scott Gilpatric. (2010). “Cheating and Enforcement in Asymmetric Tournaments.” *Southern Economic Journal* 77(1), 1-14.

2014 Conference Presentations:

“Home off the range: Managing wild horse herds and public land users’ rights”
EAAP Annual Meeting 2014, Copenhagen, Denmark (invited)

“The horse as a key player of local development in the United States in the 3rd millennium,” EAAP Annual Meeting 2014, Copenhagen, Denmark (invited)

“2012 Kentucky Equine Survey – Economic Impact Results,” UK Equine Research Showcase, Lexington, KY

Grants and Awards:

2014 – “Economic Considerations of Aggressively Treating the Influenza Virus in Equines.” Principal Investigator: Dr. C. Jill Stowe. Zoetis LLC, \$57,344.

2013 – “Transabdominal ultrasonography: A monitoring tool for *Parascaris equorum* burdens in foals.” Principal Investigator: Dr. Martin K. Nielsen. Co-PI: Dr. C. Jill Stowe. Zoetis LLC, \$25,293.

2013 – “Objective evaluation of deworming regimens in horses – growth rates, disease incidence, and financial aspects.” Principal Investigator: Dr. Martin K. Nielsen. Co-PI’s: Dr. C. Jill Stowe, Dr. Joe Pagan, Steve Caddell. Zoetis LLC, \$126,941.

CURRICULUM VITAE: **Kristine Laura Urschel, PhD**

I. Professional Appointments

- A. *Associate Professor, Department of Animal and Food Sciences, University of Kentucky*
Dates: August 1, 2014 – present
- B. *Assistant Professor, Department of Animal and Food Sciences, University of Kentucky*
Dates: August 1, 2008 – July 31, 2014

II. Education and Training

- A. *Post-doctoral Training*
Attended: Virginia Polytechnic Institute and State University
Years attended: April 2007 – July 2008
Supervisors: Dr. Raymond Geor and Dr. Jeffery Escobar
Area of research focus: Development of isotopic techniques and Western immunoblot techniques to study protein and amino acid metabolism and requirements in horses.
- B. *Doctor of Philosophy Degree*
Attended: University of Alberta
Years attended: September 2002- June 2007
Date of completion: Dissertation defended January 25, 2007. Degree conferred June 6, 2007.
Supervisors: Dr. Ronald Ball and Dr. Paul Pencharz
Dissertation title: Arginine synthesis and metabolism in neonatal piglets
- C. *Bachelor's Degree*
Attended: University of Alberta
Years attended: September 1998- April 2002
Degree awarded: Bachelor's of Science in Agriculture (major in Animal Science) with distinction

III. Publications and Grantsmanship

A. *Publications*

PEER REVIEWED JOURNAL PUBLICATIONS (20 total; only publications since 2010 listed; *Denotes a research trainee)

1. Mastro LM*, Adams AA and **Urschel KL**. Pituitary pars intermedia dysfunction does not necessarily impair insulin sensitivity in old horses. *Accepted by Domestic Animal Endocrinol on July 21, 2014 (DAE-14-35)*.
2. Tanner SL*, Wagner AL*, Digianantonio RN*, Harris PA, Sylvester JT and **Urschel KL**. Dietary crude protein intake influences rates of whole-body protein synthesis in weanling horses. *Vet J* doi: 10.1016/j.tvjl/2014.06.002, 2014
3. Brennan KM and **Urschel KL**. Recovery of insulin sensitivity in mature horses after a three-week course of dexamethasone therapy. *Equine Vet J* doi:10.1111/evj.12242, 2014.
4. Mastro LM*, **Urschel KL** and Adams AA. Effects of pars pituitary intermedia dysfunction on whole-body protein synthesis and mTOR signaling in aged horses. *Am J Vet Res* 75(7): 658-67, 2014.
5. **Urschel KL**, Escobar J, McCutcheon LJ and Geor RJ. Effects of the rate of insulin infusion during euglycemic, hyperinsulinemic clamp procedures on measures of insulin action in healthy, mature Thoroughbred mares. *Domest Anim Endocrinol* 47:92-100, 2014.
6. **Urschel KL**, Escobar J, McCutcheon LJ and Geor RJ. Insulin infusion stimulates whole-body protein synthesis and activates the upstream and downstream effectors of mTOR signaling in the gluteus medius muscle of mature horses. *Domest Anim Endocrinol* 47: 83-91, 2014.

7. Wagner AL*, **Urschel KL**, Betancourt A, Adams AA and Horohov DW. The effects of old age on whole-body protein synthesis and skeletal muscle mTOR signaling in horses. *Am J Vet Res* 74(11) 1433-1442, 2013.
8. Wagner AL*, **Urschel KL**, Lefta M and Esser KA. Gluteus medius muscle sampling depth does not affect postprandial mTOR signaling in mature Thoroughbred mares. *Am J Vet Res* 74(6) 910-917, 2013.
9. Wagner AL* and **Urschel KL**. Developmental regulation of the activation of translation initiation factors in response to feeding in the skeletal muscle of horses. *Am J Vet Res* 73(8) 1241-1251, 2012.
10. **Urschel KL**, Geor RJ, Hanigan MD and Harris PA. Amino acid kinetics in Arabian geldings: Effects of supplemental amino acids. *J Nutr* 142(3): 461-469, 2012.
11. **Urschel KL**, Escobar J, McCutcheon LJ and Geor RJ. Feeding a high protein diet following an 18-hour period of feed withholding increases mTOR-dependent signaling in skeletal muscle of mature horses. *Am J Vet Res* 72(2): 248-255, 2011.
12. **Urschel KL**, Geor RJ, Waterfall HL, Shoveller AK and LJ McCutcheon. Effects of leucine or whey protein addition to an oral glucose solution on serum insulin, plasma glucose and plasma amino acid responses in horses at rest and following exercise. *Equine Vet J* 42(Suppl 38): 347-354, 2010.

BOOK CHAPTERS (1 total; not listed)

ABSTRACTS (46 total; not listed)

B. *Grantsmanship Activities*

EXTRAMURALLY FUNDED RESEARCH (>\$1,000,000 in funding support received since 2008, only selected grants shown)

1. Title: **Threonine nutrition in growing and mature horses: effect of diet composition on threonine requirements**. PI: **KL Urschel**, University of Kentucky; Co-PI: none. Sponsor: USDA NIFA Agriculture and Food Research Initiative Program Area A1231 (Improved Nutritional Performance, Growth, and Lactation of Animals) (Competitive Grant number 2012-67015-19448); Amount: \$460,000 (\$358,786 direct costs); Grant period: July 1, 2012 – June 30, 2015.
2. Title: **Lysine requirements in yearling horses determined using indicator amino acid oxidation**. PI: **KL Urschel**, University of Kentucky; Co-PI: none. Sponsor: USDA CSREES Agriculture and Food Research Initiative, Growth and Nutrient Utilization program (Competitive Grant number 2010-65206-20638); Amount: \$149,707 (\$116,767 direct costs); Grant period: March 1, 2010 – February 28, 2013.
3. Title: **Protein metabolism in old horses: effects of inflammation and glucocorticoid excess** PI: **KL Urschel**, University of Kentucky; Co-PI/Mentor: DW Horohov, University of Kentucky. Sponsor: Morris Animal Foundation First Award Grant (Grant number D09EQ-310); Amount: \$108,000 (\$100,000 direct costs); Grant period: December 1, 2009 – November 30, 2012

IV. Teaching Responsibilities

A. *University of Kentucky Courses taught*

1. ASC 325 (Animal Physiology; Fall Semester): 2009 – present (taught 5 times; 42 – 91 students)
2. ASC 410G (Equine Science; Spring Semester): 2010 – present (taught 5 times; 40-62 students)
3. ASC 782 (Macronutrient Metabolism in Domestic Animals; Spring Semester): 2012 – present (taught 3 times; 3-5 students)
4. GEN 100 (Issues in Agriculture; Fall Semester): 2009 (taught 1 time; 16 students)

KRISTEN M. WILSON

227 Youngs Mill Road

Paris, KY 40516

(410) 349-7723

kristenwilson316@gmail.com

QUALIFICATIONS

Goal-oriented professional with strong leadership and supervisory skills and experience in equine education programming, development, and evaluation. Adept in preparing grant proposals and raising program funding through multiple sources, in addition to developing programming and educational materials to meet the communities educational needs.

EDUCATION

MASTER OF SCIENCE, 2005

University of Florida, Specialization in Extension Education, *Minor in Youth Development*

- ▶ Best Master's Thesis Award for Excellence in Graduate Research. Agricultural Education and Communications Department

BACHELOR OF SCIENCE, 2003

University of Florida, Specialization in Animal Sciences – Equine Industry, *Minor in Agriculture Business*

PROFESSIONAL EXPERIENCE

Academic Coordinator

University of Kentucky, Equine Science and Management Program

January 2013 – Present

Lexington, KY

- ▶ In cooperation with the Ag Alumni Office, maintains an ESMA graduate database. Maintains regular contact with graduates to keep them informed with on updates in the program and opportunities in the industry.
- ▶ Works with DUS and Director of Student Relations to meet with potential students during their on-campus visits. Participates as required in student recruitment activities such as FFA Convention, IFAL, Round-up and the like. Coordinates with the Director of Student Relations the recruitment of ESMA students to the Ag Ambassador program. Participates in appropriate industry events to promote the ESMA program.
- ▶ Responsible for tracking enrollment data including In-state and out-of state numbers, student success and retention, graduation statistics and other student demographics as needed. Works with the DUS and ESMA faculty to develop ongoing assessment information to evaluate how students are meeting the learning objectives of the program. In cooperation with the DUS, develops and conduct a senior exit survey.
- ▶ Responsible for advising incoming ESMA students, especially freshmen through participation in merit weekend and summer advising conferences. Serves as the primary initial advising contact at advising events throughout the academic year. Works with DUS to assign advisees to ESMA advisors after initial meeting. Currently advises 65 ESMA freshmen during bi-annual advising meetings and provides support for developing their four year plan.
- ▶ Serves as Equine Clubs and Teams liaison for the 8 equine related clubs and teams.

Consultant

University of Maryland Extension, AGsploration Program

October 2012 – January 2013 (Part-Time)

College Park, MD

- ▶ Assisted with curriculum development and editing, data collection and analysis, event registration and facilitation, educational kit assembly, program marketing and promotion, and providing leadership/management for the youth team.

Kristen M. Wilson

**Extension Horse Specialist
University of Maryland Extension**

**December 2006 – August 2012
Ellicott City, MD**

- ▶ Provided leadership for the Maryland 4-H Horse Program consisting of approximately 1,500 youth and 350 adult volunteers. Coordinated all state 4-H horse educational activities and competitive events (at least one major state event/activity each month). Enrollment numbers of state activities and events increased an average of 35%.
- ▶ Directly supervised two student workers, four volunteer state team coaches, 115 adult volunteer leaders serving on event planning committees annually, and 75 Horsemanship Standards Examiners throughout the state of Maryland.
- ▶ Managed overall programming funds and budgets and has obtained \$200,000 in competitive grant funds and solicited \$157,000 through fundraising efforts, sponsorships, and in-kind donations.
- ▶ Developed and presented educational resources. Over 60 educational resources related to the equine and 4-H fields have been developed and presented at state, regional, and national levels.
- ▶ Coordinated numerous evaluation projects and created evaluation tools surveying clientele of their potential educational needs, perceptions, information gained/learned, and current demographic information. Data collected has been used to change and/or create new educational programming opportunities.
- ▶ Maintained, updated, and created communication efforts with clientele through program website (www.4horse.umd.edu), volunteer email list-serv, quarterly electronic newsletter, and social media.
- ▶ University Teaching Responsibilities: Pasture Management and Hay Production (2007-2010), Equine Business Management (2010), and Equine Health Management (2011). Student recruitment and advising. Developed recruitment materials.
- ▶ Awards Received: 2009 NAE4-HA Achievement in Service Award, 2012 UMD College of Agriculture and Natural Resources Off Campus Junior Faculty Award, 2012 NACAA Excellence in 4-H Programming Award, and over 12 state, regional, and national communications awards.

**Coordinator of Extension Activities
University of Maryland, Department of Animal and Avian Sciences**

**September 2005 – December 2006
College Park, MD**

- ▶ Assisted nine Professors in the Department with statewide Extension educational programming and events in the areas of horse, dairy cattle, beef cattle, and poultry.
- ▶ Coordinated five major events annually including collecting registrations, booking speakers, maintaining an event budget, etc. Implemented first regional conference via web conferencing technologies for the Maryland Horse Health and Disease Prevention Seminar.
- ▶ Assisted with applied research projects in the animal science fields including setting up projects, collecting and analyzing data, and writing up project findings.
- ▶ Managed specific event funds and obtained \$22,000 in sponsorship monies.

**Graduate Research Assistant
University of Florida, Agriculture Education and Communications Department**

**May 2004 – August 2005
Gainesville, FL**

- ▶ Served as research assistant on impact and evaluation study of the Southern Rural Development Center (SRDC), collecting data, conducting interviews with clientele, and creating logic models to assist in building an Evaluation and Reporting System.

**Assistant Trainer
Hard Rock Farm**

**January 2002 – August 2005
Williston, FL**

- ▶ Assisted in implemented a training plan for eight Tennessee Walking horses up to five days per week, preparing them for showing at the National level.
- ▶ Managed farm and daily duties of 40 horse farm in the absence of farm manager/owner.

Kristen M. Wilson

**County 4-H Intern
Okeechobee County Cooperative Extension**

**April 2005 – June 2005
Okeechobee, FL**

- ▶ Assisted with daily educational programming efforts and clientele visits under the 4-H, Agriculture, and Horticulture County Agents.

**Assistant Manager
Whippoorwill Farm**

**May 2004 – May 2005
Gainesville, FL**

- ▶ Assisted in management of daily care of horses and farm property and scheduled and managed two part-time farm workers.

**Graduate Assistant
University of Florida, Family Youth and Community Sciences Department/
Agricultural Education and Communications Department**

**January 2004 – April 2004
Gainesville, FL**

- ▶ Assisted State Youth Development Specialist with state 4-H events and long term strategic planning process which included creating logic models and identifying future programmatic impacts.
- ▶ Updated and revised UF/IFAS Internship Manual for undergraduate students and UF/IFAS New Agent Orientation Handbook.

TECHNICAL SKILLS

Microsoft Office Suite (Word, Excel, PowerPoint, Access, Publisher, and Outlook); Dreamweaver; Adobe Acrobat Professional

PROFESSIONAL ASSOCIATIONS

National Association of Equine Affiliated Academics – Member (2013-present)

American Youth Horse Council –Board Member (2009-present), Youth Committee Chair (2009-2012), Public Outreach and Development Committee Co-Chair (2013-present), Secretary (2012-2014), Vice President (2014-present)

Equine Science Society, Member – 2006 to present

Epsilon Sigma Phi, Member – 2006 to 2012

National Association of Extension 4-H Agents – 2007 to 2013

Maryland Association of Extension 4-H Agents, Member (2007-2012), Secretary (2008), President Elect (2009), President (2010), Past President (2011)

Appendix C

Appendix D

Name _____

ESMA

Assessment of Knowledge

Circle the letter of the most correct answer.

1. A negative Coggins test, taken two months ago, indicates ?.
 - a. There is no possibility that the horse has equine infectious anemia today
 - b. The horse had no antibodies to equine viral arthritis at the time of the test
 - c. The horse is immune to equine infectious anemia
 - d. The horse had no antibodies to equine infectious anemia at the time of the test

2. Why should booster vaccinations be administered to a pregnant mare approximately 30 days before parturition?
 - a. It will increase the vigor of the neonatal foal
 - b. It will increase the mare's antibody titers resulting in increased passive immunity in the foal
 - c. It will calm the mare in preparation for delivery of the foal
 - d. It results in a prolonged active immunity in the foal until weaning

3. An anthelmintic with larvacidal effect has the advantage over non-larvacidal anthelmintics in that it ?.
 - a. Is lower in toxicity
 - b. Breaks up the life cycle of the parasites
 - c. Prevents parasite resistance to the drug
 - d. Can kill small strongyles encysted in muscle tissue

4. The normal rectal temperature in degrees Fahrenheit of a resting horse in a non-heat stressed environment is ?.
 - a. 98.5
 - b. 100.5
 - c. 102.5
 - d. 103.5

5. The normal heart rate in beats per minute of a resting horse is ?.
 - a. 15
 - b. 30
 - c. 50
 - d. 60

6. What is the term for the intact male donkey?
 - a. Mule
 - b. Jack
 - c. Stallion
 - d. Jenny

7. The average length of estrus in the mare is ?.
 - a. 24 hours
 - b. 3 days
 - c. 5 - 7 days
 - d. 21 days

8. The draft horse breed with little feathering on its legs and typically black or gray in color is the ?.
 - a. Suffolk Punch
 - b. Belgian
 - c. Clydesdale
 - d. Percheron

9. What is the primary hormone produced by the corpus luteum in the horse?
 - a. Progesterone
 - b. Prostaglandin
 - c. Gonadotropin Releasing Hormone
 - d. Testosterone

10. Ovulation typically occurs in the mare ?.
 - a. 24 - 48 hours after the end of estrus
 - b. 12 hours after the end of estrus
 - c. 24 - 48 hours after the start of estrus
 - d. 24 - 48 hours before the end of estrus

11. The endocrine organ that appears to modulate seasonality of mares is the ?.
 - a. Pituitary gland
 - b. Adrenal gland
 - c. Pineal gland
 - d. Ovary

12. The protein supplement with the highest lysine content and, therefore, the most appropriate for maximum foal growth is ?.
 - a. Linseed meal
 - b. Cottonseed meal
 - c. Soybean meal
 - d. Urea

13. Which vitamin is most closely related with calcium and phosphorus absorption?
 - a. Vitamin A
 - b. Biotin
 - c. Vitamin C
 - d. Vitamin D

14. Generally, as forages mature, their ?.
 - a. Protein content increases
 - b. Content of calcium and phosphorus increases
 - c. Structural carbohydrates (fiber) become increasingly lignified
 - d. Content of digestible energy increases

15. Ingesting which forage during the last three months of gestation can result in dystocia and stillbirths?
 - a. Red clover
 - b. Birdsfoot trefoil
 - c. Tall fescue
 - d. Bermudagrass

16. The quantity of blood pumped by the horse's heart into the aorta in one minute is ?.
- The cardiac output
 - The stroke volume
 - The venous return
 - The cardiac index
17. One of the effects of training on the horse is ?.
- A decrease in the horse's maximum heart rate
 - A decrease in the length of time required for the post exercise heart rate to return to normal
 - An increase in the horse's maximum heart rate
 - An increase in the horse's resting heart rate
18. The distance traveled between successive impacts of the left hind hoof is called the ?.
- Gait
 - Stride duration
 - Stride velocity
 - Stride length
19. The two major contractile muscle proteins are ?.
- Fibronectin and elastin
 - Troponin and fibrin
 - Actin and myosin
 - Fibrinogen and myosin
20. Packed cell volume is a measurement of the ?.
- Clean, colorless liquid produced by the lymphatic system
 - Quantity of leukocytes present in the total blood volume
 - Amount of plasma present in the total blood volume
 - Quantity of red blood cells present in the total blood volume
21. The genetic consequence of inbreeding is ?.
- Increased homozygosity
 - Increased traits related to fitness
 - Cover up recessive genes
 - Both a and b are correct
22. Which condition is often caused by poorly maintained stalls with consistently wet dirty bedding?
- Quarter crack
 - Seedy toe
 - Thrush
 - Laminitis
23. The area between the horse's stifle and hock is commonly called the ?.
- Flank
 - Cannon
 - Pastern
 - Gaskin

24. All of the following are found on a feed tag except ? .
- Digestible energy
 - Fiber
 - Crude protein
 - Fat
25. In which breed does HYPP most commonly occur?
- Arabian
 - Morgan
 - Quarter Horse
 - Standardbred
26. Which of the following ailments could affect the second metacarpal bone?
- Bucked shins
 - Navicular disease
 - Ring bone
 - Splints
27. A diet contains 20 ppm copper. If a horse eats 10 kg dry matter of this diet per day, how many milligrams of copper is he consuming each day?
- 0.2
 - 2
 - 20
 - 200
28. When a new horse is introduced into a pasture and a "pecking order" or social hierarchy is established with the other horses, what type of behavior is being demonstrated?
- Epimeletic
 - Et-Epimeletic
 - Agonistic
 - Allelomemetic
29. An organ that functions mainly to process nutrients absorbed from the digestive tract is the ? .
- Liver
 - Heart
 - Spleen
 - Kidney
30. One of America's oldest breeds, developed from the offspring of a single horse, is the ? .
- Morgan
 - Quarter Horse
 - American Saddlebred
 - Tennessee Walking Horse

EQM 101 : Equine Science
Questionnaire

Name: _____

Hometown: _____

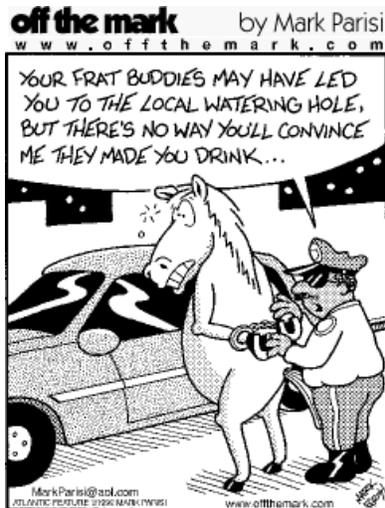
Major: _____

Why did you come to UK? _____

What do you want to do when you graduate? _____

What is your horse background? _____

Name two things that you want to get out of this class? _____



Team Project Assessment

NAME: _____

Completion of this evaluation is required as part of your team project. Responses will not be shared with your team members.

1. Please list each of your team members in the blanks provided below. Then evaluate each team member and yourself based on their/your contributions to the overall project/team and list each component of the project that team member was responsible for.

Name	Overall Rating					Project Responsibilities/Contributions
	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT	
Self	1	2	3	4	5	
	1	2	3	4	5	
	1	2	3	4	5	
	1	2	3	4	5	
	1	2	3	4	5	

Team Project Assessment

2. Use the following categories to assess the degree to which you agree or disagree with each of your fellow students and your individual contributions during the team project.

- 1 – Strongly Disagree
- 2 – Disagree
- 3 – Agree
- 4 – Strongly Agree

Category	Students' Names (List all team members in the blanks provided below)				
	Self				
Regularly attended group meetings, was punctual and co-operative.					
Contributed ideas and suggestions for the project.					
Listened to the partner's ideas and suggestions.					
Carried out the task assigned by the group.					
Accepted a fair share of the work.					
TOTAL Points (Add up each column)					

3. What about your team (people, mindsets, behaviors) contributed to your team's ability to successfully complete your project?

4. What areas (if any) do you think your team could have worked better together?

Team Project Assessment

5. Please rate your overall experience in working with your team on this project. (Select one)
- 1 – Poor
 - 2 – Fair
 - 3 – Good
 - 4 – Very Good
 - 5 - Excellent
6. Please evaluate the degree to which you agree or disagree with each of the statements below BEFORE and AFTER working on this team project. (Select one BEFORE and one AFTER score for each item listed.)

	BEFORE					AFTER				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Listening to other people's ideas is important.	1	2	3	4	5	1	2	3	4	5
It is important to ask questions of your team members.	1	2	3	4	5	1	2	3	4	5
Team members should be willing to question each other and rethink ideas.	1	2	3	4	5	1	2	3	4	5
It is important to treat each other with respect and support one another.	1	2	3	4	5	1	2	3	4	5
Team members should contribute to all aspects of a team project in some way.	1	2	3	4	5	1	2	3	4	5
Good communication is essential for a team to work effectively.	1	2	3	4	5	1	2	3	4	5

Team Project Assessment



Equine Internship: Supervisor Evaluation

Please complete the evaluation below of the intern you supervised.

Would you like your evaluation to be kept confidential? Yes No

Name					
Title					
Address					
City, State, Zip					
E-mail					
Phone					
Business					
Intern Name					
1-5 (1=Strongly disagree; 5=Strongly agree)					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The intern was reliable.					
The intern was hard working.					
The intern's skills improved over the course of the internship.					
The intern communicated well with others.					
The intern was professional.					
The intern was willing to learn.					
The intern contributed positively to this organization.					
If an appropriate job opened I would hire this intern.					

Would you recommend hiring this intern to another business or organization? _____

Why or why not? _____

Would you be interested in taking another intern? _____

Why or why not? _____

What could be changed to make supervising an intern a better experience? _____

Additional Comments: _____

(Signature & Date)

Equine Science and Management Degree Exit Interview Survey

Option (Please circle one): Equine Science Equine Management

Name: _____

Permanent Address: _____

Permanent Phone Number: _____

Non UK Email: _____

1. Post-graduation plans: (mark all that apply)

Employment-full time

Graduate or professional school-full time

Employment-part time

Graduate or professional school- part time

Military service

Volunteer activity

Additional undergraduate course work

2. If you are going to be employed, in what type of position will you have?(mark all that apply)

Position with an equine enterprise or business

Position with a non-equine enterprise or business

Working for a public/private equine agency

Management position on a horse farm

Work with family operation

Start my own business (what type?): _____

Other: _____

(Equine enterprise of business = feed company, tack and equipment etc.)

(Horse farm could be a breeding, training or boarding type facility)

3. ONLY answer if you completed question #2:

Organization/Company Name:

Type of job assignment:

Location:

Starting Salary:

Under \$20,000

\$20,000 to \$24,999

\$25,000 - \$29,999

\$30,000 - \$34,999
\$35,000 - \$39,999
\$40,000 - \$44,999
\$45,000 - \$49,999
\$50,000-\$59,999
\$60,000 or and over

4. If you are planning to attend graduate or professional school, please indicate which school and area of study.

5. How many offers of employment or graduate/professional school acceptance did you receive as a result of your interview(s)?

0

1

2

Other: _____

6. Which resources assisted you in locating the jobs/schools you applied for? (mark all that apply)

Family/Friends

Direct contact with company

College of Ag Career Fair

Equine Programs Career Fair

University Career Services

Internship/Co-Op Experience

UK Faculty/Staff (Name: _____)

7. What equine clubs/teams within the College of Ag were you a member of while here at UK?
(Check all that apply)

Hunt Seat Team

Western Team

Saddle Seat Team

R.E.A.D. Club

Horse Racing Club

Polo Team

Dressage and Eventing Team

Other (Ex: Ag Ambassador/Pre-Vet Club): _____

8. Please rate your quality of instruction you received while here at UK. (Circle one for each item)

	Poor	Fair	Good	Very Good	Excellent
University	1	2	3	4	5
College of Ag	1	2	3	4	5
Major	1	2	3	4	5

9. What additional courses would you have liked to see the Equine Program offer?
10. What is your overall rating of the guidance you received from your advisor concerning your future and plan of study?
- Poor
- Fair
- Good
- Very Good
- Excellent
11. How could we have made your advising experience better/more helpful?
12. What are the most important skills and/or knowledge you have gained as a result of completing your degree?
13. In your opinion, what could be done to improve the Equine Science and Management B.S. degree programs?

Appendix E

New

Equine Science and Management

College of Agriculture,
Food and Environment

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.

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.

Students must complete the following:

UK Core Requirements

See the *UK Core* section of the 2014-2015 *Undergraduate Bulletin* 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

Choose course(s) from approved list 3-5

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 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, Food and Environment 3

X. Global Dynamics

Choose one course from approved list 3

UK Core hours **30-32**

Graduation Composition and Communication Requirement (GCCR)

EQM 490 Capstone in Equine Science and Management 3

Graduation Composition and Communication Requirement hours (GCCR)

..... **3**

Premajor Requirements

BIO 152 Principles of Biology II 3

CHE 105 General College Chemistry I

CHE 107 General College Chemistry II

CHE 111 Laboratory to Accompany General Chemistry I

CHE 113 Laboratory to Accompany General Chemistry II 10

OR

CHE 104 Introductory General Chemistry

CHE 108 Introduction to Inorganic, Organic and

Biochemistry without Laboratory 6

ECO 201 Principles of Economics I 3

MA 123 Elementary Calculus and Its Applications

or

MA 113 Calculus I

or

MA 137 Calculus I with Life Science Applications 4

Subtotal: Premajor hours **16-20**

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 2

ASC 320 Equine Management 3

EQM 351 Equine Health and Diseases 3

EQM 399 Equine Science and Management Internship 3

EQM 490 Capstone in Equine Science and Management 3

AEC 302 Agricultural Management Principles 4

Subtotal: Major hours **25**

–CONTINUED–

University of Kentucky is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award associate, baccalaureate, masters, and doctorate degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097, call 404-679-4500, or online at www.sacscoc.org for questions about the accreditation of University of Kentucky.

Equine Science and Management • 2

Emphasis Areas

Students must have one emphasis area. In order to have an emphasis area, students must take 9 credits in one area. Students will then select 12 additional credits from any emphasis area:

Community Leadership and Development

Students who are interested in leadership roles in business, breed associations or non-profit equine organizations and cooperative extension should consider this area. They will enhance their communication skills and be required to take courses in community dynamics, leadership development, and agriculture communication.

CLD 100 Introduction to Community and Leadership Development	1
CLD 102 The Dynamics of Rural Social Life	3
CLD 225 Community and Communication: Exploring Their Intersections	3
CLD 230 Intrapersonal Leadership	3
CLD 260 Community Portraits	3
CLD 401 Principles of Cooperative Extension	3

Equine Business

Students will learn skills related to marketing, operations, and management of equine businesses. This will prepare students for careers as farm managers as well as business managers for equine enterprises, breed associations, and sales associates. This area also introduces them to the diversity of the equine industry through courses in equine law, sales, careers, event planning, marketing, and human resources.

*AEC 300 Special Topics in Agricultural Economics (Subtitle required)	3
AEC 305 Food and Agricultural Marketing Principles	3
AEC 320 Agricultural Product Marketing and Sales or	
MKT 300 Marketing Management	3
AEC 324 Agricultural Law	3
AEC 325 Equine Law	3
AEC 340 Human Resource Management in Agriculture	3
EQM 106 Introduction to Careers in the Equine Industry	1
EQM 205 Equine Career Preparation	1
EQM 301 Thoroughbred Sales	1
EQM 302 Equine Event Planning	1

Equine Science

This area will provide the students with a strong background in basic sciences which will prepare them for graduate school or careers such as laboratory research assistants, breeding technicians, pharmaceutical sales representatives, and technical representatives for the feed industry.

ASC 311 Advanced Equine Evaluation	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 389 Advanced Equine Nutrition and Feeding	2
ASC 410G Equine Science	3
VS 307 Genetics of Horses	3
VS 500 Advanced Equine Reproduction	3

Forage/Pasture

Students will obtain knowledge in agronomic practices focusing on pasture and forage management. This area will prepare students for careers related to general horse farm management or graduate school. These students will take courses in soil composition and fertility, forages, weed identification and control, and pest management.

PLS 366 Fundamentals of Soil Science	4
PLS 404 Integrated Weed Management	4
PLS 468G Soil Use and Management	3
PLS 470G Soil Nutrient Management	3
PLS 510 Forage Management and Utilization	3
PLS 531 Field Schools in Crop Pest Management	2

Subtotal: Emphasis hours **21**

**When offered under a subtitle with a focus on equine marketing.*

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 from your advisor. The list includes courses in agricultural economics, animal sciences, community and leadership development, marketing, management, finance, plant and soil sciences plus other areas of study at UK.

Subtotal: 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 9**

Total Minimum Hours for Program **120**

Appendix E

Old

Equine Science and Management

College of Agriculture, Food and Environment
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**

**Required for all first semester Freshmen. Students who transfer into the College and have already completed the UK Core U.S. Citizenship requirement are not required to take GEN 100.*

UK Core Requirements

See the *UK Core* section of the *2013-2014 Undergraduate Bulletin* 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 4

*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 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 **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.*

Graduation Writing Requirement

After attaining sophomore status, students must complete a Graduation Writing Requirement course. Please see your academic advisor for courses that meet this requirement.

Graduation Writing Requirement hours **3**

– 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	4
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	4
Subtotal: Premajor hours	23

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	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	4
Subtotal: Premajor hours	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	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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Appendix F

University of Kentucky Equine Clubs and Teams

	Dressage and Eventing Team	Horse Racing Club	IHSA Team Hunt Seat	IHSA Team Western Seat	Polo Team	R.E.A.D. (Research in Equine and Agricultural Disciplines Club)	Saddle Seat Team	Rodeo Team
Advisor	Dr. Jill Stowe (859) 218-1652 jill.stowe@uky.edu	Dr. Laurie Lawrence (859) 257-7509 llawrenc@uky.edu	Dr. Bob Coleman (859)257-9451 rcoleman@uky.edu	Dr. Bob Coleman (859) 257-9451 rcoleman@uky.edu	Dr. Roger Brown (859) 257-7257 rogerbrown@uky.edu	Dr. Kristine Urschel (859) 257-7748 klur222@uky.edu	Dr. Mary Rossano (859) 257-7552 mary.rossano@uky.edu	Ms. Elizabeth LaBonty (859) 257-2226 elizabeth.labonty@uky.edu
President	Aileen O'Brien aileen.obrien216@gmail.com	Bethany Wurl Bethany.wurl@uky.edu or ukhorseracingclub@gmail.com	Haley Dowty Uk.equestrianteam@gmail.com	Fallon Jackson f.jackson@uky.edu	Rebecca Kozlowski beccakoz@comcast.net	Sarah Sivinski sarah.sivinski@uky.edu	Andrew Slater Ajsl225@g.uky.edu or uksaddleseatteam@gmail.com	Adam Menker ukrodeoteam@gmail.com
Coach	Emily Hamel (859) 585-1607 Emily@thefarmatwin.dyknoll.com	N/A	Diana Conlon (859) 221-3302 olivehillsporthorses@gmail.com	Bennie Sargent btsquarter@aol.com	Jorge Vasquez Jorge@lexingtonpolo.com	N/A	Stephanie Sedlacko (859)887-0955 Stephanie.sedlacko@wingsweptfarm.com	Team Manager: Michael Dick (859) 339-0290
Farm	Valley View Farm Midway, KY	N/A	Robert Murphy Stables Lexington, KY	Bennie Sargent Quarter Horses Paris, KY	West Wind Stables Lexington, KY	N/A	Wingswept Farm Nicholasville, KY	Kismet Farm Paris, KY
Meetings	bimonthly	once a month	weekly	weekly	once a month	once a month	monthly/bimonthly	monthly
Costs Per Semester (As of Spring 2014)	\$40 dues \$40 per lesson \$300 competitions	\$15/semester or \$25/year	\$450 for dues and lessons \$25 per class at horse shows	\$450 for dues and lessons \$25 per class at horse shows	\$1,500 Varsity Dues \$200 Club Dues \$35/lesson for private lessons	No dues	\$150 dues \$120 for 4 lessons \$120 each show	\$25 dues \$350 for timed events \$600 for rough stock (per semester) \$235 NIRA Card (needed to compete)
Lessons	2-3 times a month	N/A	once a week	once a week	2-3 times a week	N/A	2-3 time a month	2 practices/week
Competitions	3 Fall/4 Spring	N/A	4 horse shows = 4 classes per semester	4 horse shows = 4 classes per semester	8 Fall/8 Spring	N/A	2 Fall/3 Spring	10 rodeos/year
Field Trips	2 Fall/2 Spring	3 Fall/3 Spring	N/A	N/A	4 Fall/4 Spring	once a month	N/A	N/A

For more information about our equine clubs and teams, please visit <http://www2.ca.uky.edu/equine/>

External Review

Equine Science and Management

Program Review

University of Kentucky

September 28-30, 2014

Submitted By:

Dr. Robert L. Houtz, Committee Chair – University of Kentucky

Dr. Jason Bruemmer – Colorado State University

Dr. Camie Heleski – Michigan State University

Dr. Stuart Brown – Hagyard Equine Medical Institute

Dr. Laurie Lawrence – University of Kentucky

Ms. Hannah Niebielski – ESM Graduate

Ms. Madison Scott – ESM Student

The Equine Science and Management (ESM) Review Committee met with ESM program members, students, stakeholders, and College of Agriculture, Food and Environment (CAFE) administration from Sunday, September 28th to Tuesday, September 30th. The site-visit agenda and self-study documents are available at <http://administration.ca.uky.edu/faculty/reviews>. The committee developed the following report after analyzing all of the information provided in the self-study documents and information from committee interviews. The committee also confirmed the validity of the self-study document and noted that three major concerns were articulated:

- *With the continued growth of the undergraduate degree program, we are near the “breaking point” of being able to simultaneously provide a high-quality and hands-on education to our students given our current resource constraints. Faculty members take on additional sections of classes to accommodate our students in their already-full efforts; burn out and morale are an additional concern as we all continue to do more with less. The faculty who teach have a significant portion of their DOE in some other activity, such as research or extension (only one faculty member has a 100% teaching appointment). As a result, even if faculty are able to teach more sections to accommodate higher numbers of students, they must sacrifice other important areas in which they contribute to the college and university.*
- *Even with the addition of the Academic Coordinator and the new advising strategy, growing enrollment numbers have faculty advisors advising large (and sometimes growing) numbers of students.*
- *Classroom constraints extend beyond the ESMA courses, being present college- and university-wide, and are beyond our control. However, we feel obligated to accommodate the students in our major courses in a timely manner. With the current facilities, we are unable to do so.*

These concerns were echoed by a number of individuals interviewed by the committee which corroborates their importance. The self-study document was considered especially important by those committee members not directly affiliated with the University of Kentucky. It was thorough, while still being concise. No discrepancies were noted between information provided in the self-study documents and information gleaned from in person meetings during the review.

Summary of Committee Recommendations:

- The review committee recommends that the current administrative position of the ESM program within CAFE structure be evaluated. Specifically is the program positioned appropriately for continued and future success through its association with the experiment station versus the office of academic programs?
- It is recommended that the existing structure and alignment of the committees and councils within ESM be streamlined and/or consolidated with defined roles for individuals. Also the Equine Programs Organizational Chart is unduly complicated and convoluted, a simpler chart is desirable.
- A strategic plan for the ESM program should be developed with long-term goals and measureable benchmarks. (It is recognized that a number of assessment tools have been implemented to begin this process. However, due to the general youth of the program, there is insufficient data in many cases to decide if benchmarks are being met.) This plan should emphasize a “managed growth” approach to the ESM program in order to protect the quality of the program and avoid outstripping resources.
 - Perhaps a balance should be considered between the desire to increase the number of students in the program and the necessity to maintain the quality of the program. An additional factor would be to ensure that there are sufficient number of opportunities for gainful employment for ESM graduates.
- New course(s) should be created that emphasize business/accounting education as well as presentation/communication skills and interactive skills. The new graduation composition and communication requirement (GCCR) may assist with this recommendation. The committee also recommends that a course in "alphabet organization" be considered to provide insight into the horse industry.
- The review committee recommends that current CAFE administration allocate additional resources to the ESM program in the form of TAs and faculty lines in Animal and Food Science or Veterinary Science. Consideration should also be given in the near future for the addition of an additional Academic Coordinator position.

- To accommodate the continued growth in the program additional classroom and farm facilities will be necessary. Perhaps some of the classroom facilities could come from the soon to be vacated BGCTC facilities, but farm facilities are a more difficult issue and best dealt with through the experiment station. Of special note, is the need for restroom and locker-room facilities at the Teaching Pavilion. This appears to be a limitation both for teaching and outreach activities. Though it was not presented as a particular concern, the time involved in students commuting to and from the horse unit would appear to be of concern for the long term. However, the option of busing was mentioned to be a considerable expense.
- The review committee recommends that the ESM steering committee review the appropriateness of the ESM courses and make adjustments to minimize redundancy and increase the rigor of upper level classes. Also the non-major restriction in Specialty Support Classes should be eliminated.
 - It was brought up several times that assessing students' skill levels would be helpful in most appropriately placing students in the hands-on horses classes that are available. However it was also noted that even students who "place out" of these classes would likely want to avail themselves to the hands-on opportunities anyway. Personnel limitations at this time would likely restrict the opportunity to teach multiple sections at varying levels of skill.
 - It is of some concern that students' are entering upper-level courses without the desired pre-requisites, potentially forcing ESM instruction to become remedial.
 - Some concern was noted associated with students' feeling the need to graduate early. This may demonstrate that they are not fully aware of the added benefit of taking advantage of the learning processes available to them only in this program.
- The ESM Director position should be considered as a full time appointment as the program continues to expand, and the Co-Director position should have a more well-defined set of responsibilities as well as an administrative stipend.

- The ESM faculty should consider developing a University Scholars Program in conjunction with the graduate programs in the Departments of Animal and Food Science and Veterinary Science.
- Efforts should be made to promote the tremendous equine reproduction opportunities available to undergraduates at the Gluck Center and for students with an interest in the science of horses, other well-known research programs in Veterinary Sciences, Animal and Food Sciences and Plant and Soil Sciences.
- At the moment almost all advising is performed by either the academic coordinator or by faculty in Animal and Food Sciences. Spreading the advising load among faculty in other departments would enhance the interdisciplinary nature of the program, particularly in regard to students who focus on the business of the equine industry rather than the science of managing horses.

Recommendations Comments:

The review committee's recommendations are meant to provide the ESM Program with both an external and internal perspective regarding the quality and effectiveness of its programs, services, resources, processes, and operations. Without exception the committee felt that from some very modest beginnings the ESM Program has grown to become one of the most successful Equine Programs at a national level, due in large part to the support and investments by CAFE administration, and the dedication of faculty and staff in the ESM Program. As the program continues to grow more support and investments will be necessary, especially if the quality of the program is to advance along with its size. This will require a "managed growth" approach from all involved. Although some uncertainty exists about future funding models for the program, in lieu of the new budget model at the University of Kentucky, the interdisciplinary nature of the ESM Program is a strength which may contribute to its future success. However, horse programs are inherently expensive and the department of Animal and Food Science continues to support the ESM Program by subsidizing the Horse Unit. This does create a concern over whether or not new budget model will enhance equine program opportunities or actually create problems.

Summary of Program Strengths:

- Comprehensive program with outstanding breadth and depth in equine education.
- Outstanding curriculum recently modified that allows students to select between four areas of emphasis; Equine Science, Equine Business, Community Leadership and Development, and Forages & Pastures.
- Location in Lexington at the University of Kentucky. Many would call this the heart of horse country, particularly for the Thoroughbred industry; close location to a wide variety of horse industry opportunities, both for hands-on and more peripheral industry positions.
- Strong and amazing level of industry support indicative of the high level of stakeholder commitment to and interest in the ESM Program.
- Dedicated, well trained and passionate faculty and staff with outstanding commitment to student success through personal attention during advising, coursework and internships.
- Interdisciplinary engagement with multiple units and departments with college-wide support.

Program Strengths Comments:

The Equine Science and Management Program is one of only a few undergraduate programs in the United States that offers students the opportunity to graduate with a standalone degree in Equine Science. The program is truly interdisciplinary with faculty participation in teaching and committee work from several departments in CAFE.

Growth in enrollment has steadily increased since the degree became official in 2009 and is already poised to become the largest major in CAFE. The popularity of this multi-disciplinary major in CAFE which attracts students nationally and fits well with the proposed university budget model for growth and graduation rates, easily justifies university level administrative support (and attention) for infrastructure development. These needs are certainly evident across CAFE in classroom space, faculty support, laboratory and farm facilities which have been outlined in the report, but could be emphasized in the program's enhancing role for

the University of Kentucky's profile. Located in the epicenter of the horse industry, this program provides a unique opportunity in supplying the next generation of leaders in its own backyard with stakeholders engaged in its continued success.

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: CAFE/Equine Science & Management

Date: 12/8/2014

Recommendation/ Suggestion	Source I/E/H*	Accept/ Reject**	Unit Response (resulting goal or objective)	Actions (including needed resources & approximate cost)	Time Line
1. The current administrative position of the ESM Program within CAFE structure should be evaluated, specifically is the program positioned appropriately for continued and future success through its association with the experiment station versus the office of academic programs?	E	A	<p>This recommendation should be considered in the context of the Equine Programs instead of the ESM Program.</p> <p>The EP Council plans to carefully evaluate the alternatives in reporting structure. It should be noted that currently, the chair of the ESMA steering committee reports to the Associate Dean for Instruction, while the Director of the EP reports to the Associate Dean for Research.</p> <p>This decision must be made carefully; the EP is different from the other interdisciplinary programs, which are strictly degree programs and do not have research and outreach missions.</p>	<p>The ESMA Steering Committee will work with college administration to determine the feasibility of a change.</p> <p>Time, support and guidance from administration, as well as financial resources will be needed, should the reporting structure change.</p>	Complete by June 2016
2. The existing structure and alignment of the committees and councils within ESM should be streamlined and/or consolidated with defined roles for individuals.	E	A	<p>This recommendation should be considered in the context of EP instead of ESM.</p> <p>The organization will be reviewed and clarified where possible.</p>	<p>The ESMA Steering Committee will work with college administration on this recommendation.</p>	Complete by Dec. 2015
3. The Equine Programs Organizational Chart is unduly complicated and convoluted. A simpler chart should be developed.	E	A	<p>As an interdisciplinary program, the EP is complex. However, it would be a useful exercise to update the current organizational chart.</p>	<p>EP leadership will update the organizational chart.</p>	Complete by Dec. 2016
4. An ESM program strategic plan should be developed with long-term goals and measureable benchmarks, emphasizing "managed growth" in the ESM program to protect the quality of the program and avoid outstripping resources.	E	A	<p>The ESMA Steering Committee and EP leadership stand ready to engage in strategic planning once the new budget model becomes available. The incentives in the budget model might drive the long-term direction of the undergraduate degree program.</p> <p>However, in the meantime, we will</p>	<p>EP leadership, college administration, and the ESMA Steering Committee will work together on this recommendation.</p>	Start in Fall of 2015

			engage in a curriculum mapping exercise to thoroughly review the content in the courses that are being taught, ensuring that concepts are being reinforced but not to the point of redundancy, as well as allowing us to identify any potential gaps in the curriculum.		
5. New course(s) should be created that emphasize business/accounting education, as well as presentation/communication skills and interactive skills.	E	A, with caveat	<p>A fair amount of accounting material is taught in AEC 302. In addition, students will be strongly encouraged to take Accounting as Specialty Support.</p> <p>The new GCCR requirement helps address the need for more presentation and communication skills, and other courses include some or all of these components.</p>	The curriculum mapping exercise will allow us to identify where these skills are being exercised in other courses.	Ongoing
6. A course in "alphabet organization" should be considered to provide insight into the horse industry.	E	A, with caveat	<p>A course in equine organization governance is not something we are currently staffed to handle, but portions of this topic are covered in other courses taught in the program.</p>	The curriculum mapping exercise will allow us to identify where these skills are being exercised in other courses.	Ongoing
7. CAFE administration should allocate additional resources to the ESM program in the form of TAs and faculty lines in Animal and Food Sciences or Veterinary Science.	E	A	<p>This recommendation should read "member departments" instead of Animal and Food Sciences or Veterinary Science." The departments with which this program collaborates reach beyond AFS and VS and also may change over time.</p> <p>This is one of the most critical needs of the program that stands to have one of the biggest impacts.</p> <p>The ESMA degree program, although quite new, is already operating above capacity, both in terms of personnel as well as physical space.</p> <p>One option would be to add another faculty line in an area of need. Of importance is that advising would be expected of this individual.</p> <p>Another option is to hire a lecturer, possibly in a 9-month position, with the main responsibilities being teaching and</p>	<p>Approval from administration \$85K/faculty line \$30K/TA line</p>	As soon as possible – this is CRITICAL

			<p>advising.</p> <p>Yet another possibility, which would at least address the advising burden in ESMA (as well as AFS) is hiring a professional advisor, who could be trained quickly to advise students in both majors.</p> <p>Having 3-5 TA lines represents yet another solution. There are a number of courses and/or labs which could be taught at a high level by graduate students; this is common at other universities. While it has not always been the culture to have graduate students teach in CAFE at UK, we have come to a point where it may very well be a good solution. In addition, providing this sort of opportunity has an added advantage by giving our graduate students important experience; many of them hope to pursue careers in teaching, yet they currently don't have any or many opportunities to teach.</p>		
8. An additional Academic Coordinator position should be considered in the near future.	E	R	There is certainly a need for addressing the large advising burden that exists in both EQM and AFS, but it is not clear that hiring a second academic coordinator is the best way to do accomplish this.	--	--
9. To accommodate continued growth in the program, additional classroom and farm facilities will be necessary.	E	A	<p>Greater classroom facilities are needed to accommodate not only continued growth, but to catch up with the current size of the program. This need is shared by other departments in CAFE. An attractive solution would be a shared building on campus.</p> <p>Although <i>more</i> farm facilities may not be needed strictly for the undergraduate program, existing facilities are in dire need of improvement. The biggest need is a handicapped-accessible restroom facility in the teaching pavilion.</p> <p>EP leadership will review whether teaching activities limit the research that takes place on the farm, both in terms of</p>	\$50K - millions	2–10 years

			facilities and farm staff, to determine whether additional facilities are needed to adequately serve the undergraduate degree program.		
10. The ESM steering committee should review the appropriateness of ESM courses and make adjustments to minimize redundancy and increase the rigor of upper level classes.	E	A	Prior to receiving the review committee's report, the ESMA steering committee made a plan to conduct a "curriculum mapping" exercise in Summer 2015. This will allow everyone in the program to understand what material is currently taught in the program, where potential gaps may be, and whether there is sufficient reinforcement without redundancy.	EP leadership and the ESMA Steering Committee will work together on this recommendation.	Complete by Dec. 2016
10.5. The non-major restriction in Specialty Support Classes should be eliminated.	E	R, with caveat	We determined an alternate solution.	This solution has been implemented.	Completed
11. The ESM Director position should be a full time appointment as the program continues to expand, and the Co-Director position should have a more well-defined set of responsibilities, as well as an administrative stipend.	E	A	This recommendation should read "EP Director," not "ESM Director." Such a change is necessary for the Equine Programs to reach the next level.	This is supported by the administration, but a funding source needs to be identified. A competitive salary for a full-time director would likely be about \$125,000. The stipend for and responsibilities of the co-director would also need to be determined. Supporting these changes would likely require an endowment.	Ongoing. Dependent upon funding.
12. The ESM faculty should develop a University Scholars Program in conjunction with the graduate programs in Veterinary Sciences, Animal and Food Sciences and Plant and Soil Sciences.	E	A	This recommendation should read "member departments" instead of "Veterinary Sciences, Animal and Food Sciences and Plant and Soil Sciences." The departments with which this program collaborates reach beyond VS, AFS and PSS and also may change over time. While the ESMA steering committee finds this recommendation interesting, it feels that there are a number of pressing issues which need to be addressed first, and we lack the time and manpower to do both. With that said, this recommendation will be placed on the backburner and revisited later.	TBD	TBD

<p>13. The ESM program should promote the tremendous equine reproduction opportunities available to undergraduates at the Gluck Center and for students with an interest in the science of horses, other well-known research programs in Veterinary Sciences, Animal and Food Sciences and Plant and Soil Sciences.</p>	<p>E</p>	<p>A</p>	<p>This recommendation should read “member departments” instead of “Veterinary Sciences, Animal and Food Sciences and Plant and Soil Sciences.” The departments with which this program collaborates reach beyond VS, AFS and PSS and also may change over time.</p> <p>It is important to promote the research opportunities to undergraduates in all CAFE departments.</p>	<p>EP leadership will increase efforts to communicate opportunities to students as well as to communicate internship opportunities to students.</p>	<p>Ongoing</p>
<p>14. ESM advising should be spread among faculty in other departments beyond Animal and Food Sciences. This would enhance the interdisciplinary nature of the program, particularly in regard to students who focus on the business of the equine industry rather than the science of managing horses.</p>	<p>E</p>	<p>R, with a caveat</p>	<p>In terms of sharing the advising load, there would be little impact. Because of the interdisciplinary nature of the program, it seems reasonable to include faculty from departments other than AFS for advising, but these faculty also advise students in their home departments. The logistics of organizing information-sharing is not insurmountable, but the costs likely outweigh the benefits.</p>	<p>The suggested alternatives posed in the response to recommendation #7 are more efficient and attractive solutions.</p>	<p>Ongoing</p>

* 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: Approved by Director 5/22/15

Unit Chief Administrative Officer: Approved by Dean 5/22/15