

**Attachment 3**  
**NEW Certificate Program**

**UNDERGRADUATE BEEF CATTLE RANCH MANAGEMENT CERTIFICATE PROGRAM**

This proposed certificate program will require the completion of a minimum of 23 semester credit hours of defined beef cattle production and management courses. The certificate program requires more courses, and hence more specialization, than a minor regardless of the declared major of the student. The courses will provide practical application of scientific knowledge to beef cattle production and ranch management issues. It is likely that students may choose to complete the Certificate Program concurrent with the pursuit of a degree in any of the eight colleges at Kansas State. All students must be formally admitted to K-State in order to participate in the program.

**RATIONALE:** The financial well-being of Kansas citizens is critically dependent upon the profitability and growth of the beef cattle industry. Many departments and colleges within Kansas State University have outstanding individual programs that support Kansas Beef Producers. Certificate programs are excellent for multidisciplinary training for a specific area. Undergraduate degree plans are not specific to beef cattle production or management. Therefore, they do not receive documented recognition for tracking in a specific area. In addition, students in the CS 611 course will be required to earn Beef Quality Assurance (BQA) certification as part of the National Cattleman's Beef Association's implementation plan for adopting BQA principles to proactively address quality and safety issues in beef operations.

**IMPACT:** Agricultural Economics, Agronomy

**EFFECTIVE DATE:** Fall 2009

**COURSES:** Students must complete 23 hours from the following courses:

**Core Courses (19 Credit Hours) (\*\*Some courses have pre-requisite requirements)**

ASI 620	Livestock Production Management	2	
ASI 680	Ruminant Nutrition	1	
ASI 683	Grazing Livestock Nutrition	1	
AGRON 501	Range Management	3	Pick One Course
AGRON 550	Forage Management	3	
CS 611	Cow/Calf Health Systems	2	BQA Certification required to complete course
AGEC 308	Farm and Ranch Management	3	Pick One Course
AGEC 318	Food & Agribusiness Management	3	
ASI 400	Farm Animal Reproduction	4	
ASI 510	Animal Breeding Principles	3	

**Electives – (Minimum 4 Credit Hours)**

ASI 534	Introd to Pharmacology of Farm Animals	2
ASI 650	ID and Data Management Food Animals	2
ASI 512	Bovine Reproductive Technologies	2
ASI 661	Problems/Artificial Insemination	1
ASI 402	Calving	1

**\*\*Required Pre-requisite Courses**

ASI 515	Beef Science	3
ASI320	Principles of Feeding	3

AGEC 120	Ag Economics & Agribusiness	3
MATH 100	College Algebra	3
ASI 500	Genetics	3
BIOL 198	Principles of Biology	4
CHEM 110/111	General Chemistry & Lab	4
ASI 318	Fundamentals of Nutrition	3

**Students are expected to meet all prerequisites for the courses listed or have consent of the instructor. Prerequisite courses other than the courses listed above do not count toward the total hours for the Certificate Program.**

**To receive the certificate students must have a cumulative GPA of 2.0 in the 23 required hours.**

**Course(s) from junior colleges and/or technical school programs will not be applied toward the certificate unless the course(s) are equivalent to a Kansas State University course.**

#### **BEEF CATTLE FACILITIES:**

Numerous beef production teaching and research facilities in and around the main K-State campus support teaching and research of the beef cattle production issues and include the following units.

**Beef Cattle Research Center:** Numerous members of the department use the facilities to conduct research in a number of areas such as energy requirements, vitamin needs, protein levels, mineral utilization, management techniques and other concerns associated with beef production. Facilities are available to do research from individual animals to groups as large as 50.

**Beef Stocker Unit:** The 1300 acres of native pasture west of Manhattan has been used to conduct research on the best management practices for beef production utilizing the native grass. The area is currently used to test and measure different methods for development of stocker cattle.

**Cow/Calf Unit:** The Unit is home to approximately 250 mature Herford x Angus cows and is located on several sites near the campus. Both fixed and portable facilities enable management of cattle and calves at all stages of production. Cattle graze native Flint Hills range throughout the year and a variety of crop residues are available on a seasonal basis. The unit provides a venue for hands-on experience for undergraduate students and animal resources for graduate students resulting in research-based advanced degrees. Ongoing investigations include fundamental as well as applied research in the nutrition and management of grazing beef cattle.

**Feedmill:** One of the things a researcher needs to control with utmost confidence is the ration being fed to research animals. In an effort to have a good handle on the processing of the grains and additives used in caring for our animals, the ASI Department maintains a feed mill. Grains are meticulously prepared at the mill in the fashion requested for any particular project and delivered by departmental personnel to the site the researcher requests.

**Kansas Artificial Breeding Service Unit:** The unit provides artificial insemination collection, storage, and shipment services as well as a variety of breeding supplies to its customers.

**K-State Meat Processing Laboratory:** This meat processing facility exposes students to harvesting livestock, processing carcasses into consumer ready meat products, and creating value-added products.

**Pre-Harvest Safety Microbiology Laboratory:** This unit provides an on-site laboratory to research the effect of a variety of pre-harvest treatments on the microbiological flora of beef cattle – and how this may impact food safety issues of the final beef products.

**Purebred Beef Teaching Unit:** The unit provides a site to maintain a purebred beef herd. Some of the offspring of the purebred beef herd have been fitted, shown and sold. There are rooms for students to live and work at the barn. In addition, other students provide hourly labor in caring for the cattle.

**Ruminant Nutrition Laboratory:** The laboratory includes a complex of two large labs, nine smaller labs, and an animal room. The animal room is equipped with six animal crates for metabolism work with steers and seven tie-stall facilities for cattle. This area also has a feed room and a sample grinding facility.

**Weber Hall's multi-purpose indoor arena:** The 3500 seat arena was designed to serve research, teaching and extension through use as a feeding laboratory for nutrition studies, a class laboratory for animal evaluation, a site for student activities such as The Little American Royal and a Collegiate Rodeo, a place for National Breed Associations to hold meetings and a place where state breed associations could hold shows and sales.

**KSU Beef Production Medicine (BPM):** Veterinary students across the U.S. have enrolled in senior rotations offered by this group. Recently this group's Veterinary Antimicrobial Decision Support System initiative has attracted funding from 7 veterinary and producer organizations as well as the FDA Center for Veterinary Medicine. This system, combined with the four board-certified veterinary clinical pharmacologists at KSU and PharmCATS (a pharmaceutical analytical laboratory) have established KSU as a world leader in veterinary therapeutics education and research.

**KSU Veterinary Medical Teaching Hospital (VMTH):** This group is composed of specialists in Internal Medicine and is the only College of Veterinary Medicine in the U.S. to have a Board Certified Surgeon exclusively working on cattle. VMTH faculty provide unique research support through animal model development and surgical implantation of research cannulas and other ports.

**KSU Veterinary Diagnostic Laboratory (VDL):** In addition to routine diagnostics, the VDL focuses on zoonotic and emerging/re-emerging animal disease surveillance technology. The VDL participates in the Laboratory Response Network and the National Animal Health Laboratory Network. Recently, the VDL along with the National Agricultural Biosecurity Center received funding that will establish KSU as a national training center using robotics for high throughput animal disease surveillance. This national center will provide extensive training for diagnosticians, scientists and students throughout the world.

**ADMINISTRATION OF THE BEEF CATTLE PRODUCTION CERTIFICATE PROGRAM:** The Teaching Coordinator of the Animal Sciences and Industry department or his/her designate will administer/coordinate the Ranch Management Certificate program. The Animal Sciences and Industry Teaching Advisory Council may review the Ranch Management Certificate Program periodically, and will have the right to approve modifications to the course list.

Students working toward an undergraduate degree should enroll for the program in the Animal Sciences and Industry student records office, 134 Weber. The student's progress will be monitored by the department and a certificate will be sent to the student once the 23 required hours have been completed.

**FACULTY AND STAFF:**

Effective instruction is a constant goal of the Department of Animal Sciences and Industry and the College of Agriculture. The quality of instruction in the classrooms and laboratories is among the best that the university has to offer. Faculty and staff within the beef program are no exception.

Current Beef Cattle Production  
(and Related Fields) Instructors:

Dr. Michael Apley

Dr. Dale Blasi

Dr. Jennifer Bormann

Mr. Ryan Breiner

Dr. Johann (Hans) Coetzee

Dr. Duane Davis

Dr. Kevin Dhuyvetter

Dr. Jim Drouillard

Dr. David Grieger

Dr. Ron Hale

Dr. Karl Harborth

Dr. Larry Hollis

Dr. Terry Houser

Dr. Melvin Hunt

Dr. Sandy Johnson

Dr. Shelie Laflin

Dr. Bob Larson

Dr. J. Ernest Minton

Dr. Dan Moser

Dr. David Nichols

Dr. Ken Odde

Dr. K.C. Olson

Mr. Ronald Pope

Dr. Jack Riley

Dr. Timothy Rozell

Dr. Mike Sanderson

Dr. Scott Schaaake

Dr. Jeffrey Stevenson

Dr. Dan Thomson

Dr. John Unruh

Dr. Brad White

Related Fields

Dr. Joseph Arata

Dr. Keith Behnke

Dr. Robert Burton Jr.

Dr. James Mintert

Dr. Clenton Owensby

Dr. John Slocombe

Dr. Ludek Zurek

**Undergraduate Beef Cattle Ranch Management Certificate Program**  
**Assessment of Student Learning Plan**  
Kansas State University

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**A. College, Department, and Date**

College: Agriculture  
Department: Animal Sciences and Industry  
Program: Undergraduate Beef Cattle Ranch Management Certificate Program  
Date: September 5, 2008

**B. Contact Person(s) for the Assessment Plans**

David Nichols, Professor, Teaching Coordinator for Animal Sciences and Industry  
Mishelle Hay, Academic Administrative Assistant

**Degree Program**

Undergraduate Certificate

**Assessment of Student Learning Three-Year Plan**

**1. Student Learning Outcome(s): Students will demonstrate:**

- a. Application of critical thinking and problem-solving skills to beef cattle production issues.
- b. Application of scientific principles to beef cattle production and management.
- c. Development of technical skills that will increase their competency in the beef cattle production industry.

Special rationale for selecting these learning outcomes (optional):

**Relationship to K-State Student Learning Outcomes** (insert the program SLOs and check all that apply):

Program SLOs	University-wide SLOs -- Undergraduate Programs					Program SLO is conceptually different from university SLOs
	Knowledge	Critical Thinking	Communication	Diversity	Academic / Professional Integrity	
A	X	X				No
B	X	X				No
C	X	X	X			No

**2. How will the learning outcomes be assessed? What groups will be included in the assessment?**

SLO	MEASURES		WHO IS ASSESSED?
	DIRECT	INDIRECT	
Critical thinking and problem-solving skills	Selected exam questions and written projects from ASI 680, 683, and 510		Certificate students in ASI 680, 683, and 510
		Program completion surveys	Graduating Certificate Program students
Application of scientific principles to beef cattle production and management	Selected exam questions and written projects from ASI 510 and DCS 611		Certificate students in ASI 510 and DCS 611
		Program completion surveys	Graduating Certificate Program students
Develop technical skills to increase competency in the industry	Lab practicals in ASI 661 Artificial Insemination, ASI 402; Select assessments from ASI 510, and DCS 611		Certificate students in ASI 661 Artificial Insemination, 402, 510, and DCS 611

**3. When will these outcomes be assessed? When and in what format will the results of the assessment be discussed?**

SLO	TIMETABLE FOR ASSESSMENT OF SLO			CREATION OF BASELINE
	2008-2009	2009-2010	2010-2011	
Critical thinking and problem-solving skills	ASI 680, 683	ASI 510	ASI 680 and 683	Baseline created after fall 2010
Application of scientific principles to beef cattle production and management	DCS 611	ASI 510	DCS 611	Baseline created after fall 2010
Develop technical skills to increase competency in the industry	ASI 661 Artificial Insemination, ASI 402, and DCS 611	ASI 510	ASI 661 Artificial Insemination, ASI 402, and DCS 611	Baseline created after fall 2010

#### 4. What is the unit's process for using assessment results to improve student learning?

Beef teaching faculty and staff in the department of Animal Sciences and Industry and the Department of Clinical Sciences (Veterinary Medicine) will meet and review the results of the assessment. Adjustments to courses and program requirements will be developed and presented to the entire faculty and the College of Agriculture once baseline data is developed. Changes in course offerings, content, and curriculum will be used for student performance improvement.

**Student Learning Outcomes  
Animal Sciences and Industry  
Beef Cattle Ranch Management Certificate Program  
College of Agriculture**

Certificate Program Graduates from the Kansas State University will have demonstrated:

1. The ability to apply critical thinking and problem-solving skills to industry issues in beef production and management.

**KSU Undergraduate  
Student Learning  
Outcomes**

Knowledge,  
Critical Thinking

2. Application of scientific principles to beef cattle production and management.

Knowledge,  
Critical Thinking

3. The ability to learn and develop technical skills that will increase their competency in the beef cattle production and management industry.

Knowledge,  
Critical Thinking,  
Professional Development,  
Ownership of Learning