

**Student Outcomes Assessment Plan – Revised 2006/07**  
**Undergraduate Program – Animal Sciences**  
**Department of Animal Sciences and Agricultural Education**  
**California State University, Fresno**

**Mission Statement**

The mission of the Animal Sciences program is to prepare undergraduate students in the diverse disciplines of animal science. Emphasis is placed on critical thinking and communicative skills to solve production, processing, environmental and ethical problems and to prepare students for admission to programs of further scientific study. The program works closely with the animal industry and governmental agencies to integrate the student's education with industry experience and future employers to empower students for professional careers in modern agriculture.

**Specific Goals and Objectives**

**Goal 1.** Students must demonstrate knowledge of the various species of livestock, their traditional and non-traditional production systems, and the industries associated with the respective species.

**Objective 1.1** - Students must be able to identify, know characteristics of, and understand positive and negative attributes of the different breeds of livestock.

**Objective 1.2** - Students must demonstrate knowledge of the traditional and non-traditional production systems of livestock species and the strengths and weaknesses of these production systems.

**Objective 1.3** - Students must exhibit knowledge of the industries associated with the different species of livestock in terms of size, scope, various segments and how these segments work together to bring food products to the consumer.

**Goal 2.** Students must understand the scientific principles of genetics, reproduction, nutrition, physiology, and environment and how these areas integrate in affecting animal production.

**Objective 2.1** - Students must be able to describe genetic principles and how they impact animal performance and production.

**Objective 2.2** – Students must be able to manage genetics for optimal animal performance.

**Objective 2.3** - Students must be able to discuss reproductive principles and how reproduction impacts animal performance and production.

**Objective 2.4** – Students must be able to manage reproduction for optimal animal performance.

**Objective 2.5** - Students must be able to summarize nutritional principles and how nutrition impacts animal performance and production.

**Objective 2.6** – Students must be able to formulate rations using the appropriate ingredients for the different livestock species.

**Objective 2.7** - Students must understand thoroughly anatomy and physiology of farm animals.

**Objective 2.8** - Students must be able to articulate how the environment influences animal health, stress and performance.

**Objective 2.9** – Students must be able to manage environmental influences for optimal animal performance.

**Goal 3.** Students must demonstrate competency in the areas of animal health, welfare and handling and understand how these factors influence animal stress and production.

**Objective 3.1** - Students must be able to describe the numerous diseases that impact animals and how these diseases affect animal health and performance.

**Objective 3.2** - Students must be able to identify animals with different diseases by recognizing signs and symptoms of the numerous diseases that affect farm animals.

**Objective 3.3** - Students must be able to recommend proper treatment for different diseases and conditions that affect animal health and properly administer these treatments.

**Objective 3.4** - Students must be able to handle animals in a proper manner and appreciate animal welfare.

**Objective 3.5** – Students understand how animal handling impacts animal stress and performance.

**Goal 4.** Students must be able to identify current processing methods for the various species of food animals, the products produced from these animals, and understand the importance of food safety in producing these products.

**Objective 4.1** - Students must be able to identify the methods used to harvest and process the various farm animal species.

**Objective 4.2** - Students must be exposed to further processing of livestock carcasses and value-added food products.

**Objective 4.3** - Students must understand thoroughly the importance of food safety when producing animal products and the current programs and methods used to produce safe, wholesome food products.

**Objective 4.4** - Students must be able to discuss quality assurance programs in the various food animal livestock species.

**Goal 5.** Students must be able to critically evaluate livestock in terms of form and function.

**Objective 5.1** - Students must be able to critically evaluate breeding animals of the different farm animal species and understand the relationship between conformation and animal performance in a production system.

**Objective 5.2** - Students must understand the current methods used to summarize production and performance information in the different livestock species and be able to use these records for genetic selection and improvement.

**Objective 5.3** - Students must be able to critically evaluate feeder animals and be able to predict logical slaughter endpoints for animals of the different food animal livestock species.

**Objective 5.4** - Students must be able to critically evaluate slaughter animals in the different food animal livestock species and be able to predict carcass composition when evaluating live animals.

**Goal 6.** Students must be able to determine the economic performance of livestock enterprises and predict how management decisions influence economic performance and profitability.

**Objective 6.1** - Students must be able to determine economic performance of a livestock enterprise.

**Objective 6.2** - Students must be able to formulate budgets for livestock enterprises.

**Objective 6.3** - Students be able to predict how management decisions affect economic performance of livestock enterprises.

**Goal 7.** Students must be competent with the use of computers and have abilities in the areas of critical thinking and decision-making. In addition, they must have strong oral and written communication skills, and a sense of the importance of responsibility and work ethic.

**Objective 7.1** - Students must be competent in the use of computers.

**Objective 7.2** - Students must have strong critical thinking and decision-making skills.

**Objective 7.3** - Students must be competent in the areas of oral and written communication.

**Objective 7.4** - Students must understand the importance of responsibility and work ethic in affecting the level of success in their future careers.

Our current animal science courses are listed on page 5 and a matrix outlining the relationship between these courses and our learning objectives is depicted on page 6.

## Animal Science Courses

A Sci 1	Introduction to Animal Science
A Sci 11	Meat Animal Selection and Evaluation
A Sci 21	Beef Cattle Production
A Sci 31	Swine Production
A Sci 35	Feeds and Feeding
A Sci 41	Sheep Production
A Sci 51	Horse Production
A Sci 52 & 53	Beginning and Intermediate English Equitation
A Sci 54 & 55	Beginning and Intermediate Western Equitation
A Sci 61	Dairy Cattle Production
A Sci 65	Introduction to Animal Health
A Sci 67	Animals and Society
A Sci 68	Pre-Vet Orientation
A Sci 71	Meat Science
A Sci 81	Introduction to Livestock and Dairy Evaluation
A Sci 91	Poultry Production
A Sci 94	Agri Internship
A Sci 101	Environmental Management of Farm Animals
A Sci 121	Advanced Beef Management
A Sci 125	Animal Genetics
A Sci 131	Advanced Swine Management
A Sci 135	Animal Nutrition
A Sci 145	Anatomy and Physiology of Farm Animals
A Sci 146	Physiology of Lactation
A Sci 151	Advanced Horse Management
A Sci 152	Equine Nutrition
A Sci 153	Stable Management
A Sci 155	Animal Reproduction
A Sci 156	Artificial Insemination and Embryo Transfer
A Sci 161	Advanced Dairy Farm Management
A Sci 162	Dairy and Meat Systems Management
A Sci 163	Dairy Cattle Nutrition
A Sci 165	Infectious Diseases of Domestic Animals
A Sci 171	Advanced Meat Science
A Sci 172	Meat Technology
A Sci 180	Undergraduate Research
A Sci 181	Advanced Livestock and Dairy Evaluation
A Sci 182	Livestock Marketing and Show Management
A Sci 183	Issues and Opportunities in Animal Science
A Sci 185T	Topics in Animal Science
A Sci 186	Animal Science Seminar
A Sci 190	Independent Study
A Sci 194	Agricultural Internship
A Sci 196	Enterprise Management



## **Assessment Activities**

### **Assessment Activity # 1 - Department Advisory Committee**

The department meets with the advisory committee on an annual basis. This committee is comprised of industry leaders from the various livestock species, community college faculty, veterinary care professionals and people representing regulating or government agencies. The committee members provide input in terms of the direction and important components of the program and the curriculum. They are provided an updated version of the Outcomes Assessment Plan on an annual basis and they review the information that the department has gathered through assessment activities and how that information is being used program improvement.

### **Assessment Activity #2 - Senior Survey**

The department administered a web-based senior survey in the spring of 2006. It plans on conducting this survey on an annual basis. The survey provides data as to the value of activities such as the internship program, judging and show teams and involvement at the animal production units. In addition, it gathers data as to the student's perceived competency in the major areas of study and emphasis areas and also the quality of advising provided by the department.

### **Assessment Activity #3 - Employer Survey**

The department has not conducted an employer survey since the last program review. The plans are to develop a web-based survey that would function similar to the senior survey. Many of the departmental faculty members have strong contacts with the major employers of the department's graduates. In addition, the department will attempt to gather names and addresses of other employers through the alumni survey. The employer survey will be developed to gather information as to the competency of training in the various areas of animal sciences. In addition, it will gather information as to the work ethic, responsibility, critical thinking, decision making skills, and written and oral communication skills of departmental graduates.

### **Assessment Activity #4 – Graduate Qualifying Exam**

For the past two years, the department has administered a qualifying exam to students entering the graduate program. The exam is organized into the following areas that are aligned with the major science courses: anatomy and physiology, reproduction, genetics, nutrition, muscle biology, and health and disease. The department graduate coordinator administers and coordinates the exam. Faculty members that teach the undergraduate and

graduate courses in the specific areas have developed the questions and grade the questions in that specific area. Most of the student's entering the graduate program are also graduates of the undergraduate program. This exam is comprised of essay questions and provides valuable information concerning the competency of students in meeting many of the specific learning objectives pertaining to goals #2 and #3 and also the student's ability in the area of written communication skills (part of objective 7.3). In addition, the department can evaluate how the departmental graduates perform on this exam versus students entering the graduate program from other departments or institutions.

#### **Assessment Activity #5 – Alumni Survey**

The department has not conducted an alumni survey since the last program review. The plans are to develop a web-based survey that would function similar to the senior survey. This survey will be sent to alumni that have accepted positions in industry and also those that have pursued further study in animal science graduate programs and veterinary schools. It will gather similar data as the senior survey, however, it will gather this data after the students have been in industry or further study for a period of 3 to 4 years.

#### **Assessment Activity #6 – Course Embedded Assessment – Advanced Courses**

The advanced management courses serve as culminating courses that require students to incorporate knowledge from many different areas and courses to answer "real world" production questions. A portion of the final examinations in all of these courses will consist of similar questions. These questions will be tailored to the specific species. However, they will be similar in that they will involve production scenarios with designed problems. Students will have to evaluate the production situation, determine the problems if any, and propose a recommendation for improving the production scenario.

#### **Assessment Activity #7 – Final Paper and Presentation – Senior Seminar**

A Sci 186 – Animal Science Seminar - serves as one of the culminating courses in the department. Students develop a resume and cover letter. In addition, they write a report and give an oral presentation on a current topic in the field of animal science. The written paper and oral presentation will be evaluated using a rubric developed to assess the written and oral communication skills of students.

Outlined on the following page is a matrix showing the relationship between the assessment activities and the specific learning objectives.

**Matrix  
Assessment Activities and  
Learning Objectives**

	Assesment Activities						
	# 1	# 2	# 3	# 4	# 5	# 6	# 7
	Advisory Comm.	Senior Survey	Employer Survey	Grad. Qual. Exam	Alumni Survey	Adv. Mgt. Courses	Senior Seminar
<b>Objectives</b>							
1.1	x	x			x		
1.2	x	x	x		x	x	
1.3	x	x	x		x		
2.1	x	x		x	x		
2.2	x	x	x		x	x	
2.3	x	x		x	x		
2.4	x	x	x		x	x	
2.5	x	x		x	x		
2.6	x	x	x		x	x	
2.7	x	x		x	x		
2.8	x	x		x	x		
2.9	x	x	x		x	x	
3.1	x	x		x	x		
3.2	x	x	x	x	x	x	
3.3	x	x	x		x	x	
3.4	x		x		x		
3.5	x	x	x		x	x	
4.1	x	x	x		x		
4.2	x	x			x		
4.3	x	x		x	x		
4.4	x	x	x	x	x		
5.1	x	x			x		
5.2	x	x	x		x		
5.3	x	x			x		
5.4	x	x			x		
6.1	x	x	x		x	x	
6.2	x	x	x		x	x	
6.3	x	x	x		x	x	
7.1	x	x	x		x	x	x
7.2	x		x			x	x
7.3	x		x	x		x	x
7.4	x		x				

**Proposed Timeline  
Outcomes Assessment Activities**

<b><u>Year</u></b>	<b><u>Assessment Activity</u></b>
2006/07	Assessment Activity #1 – Department Advisory Committee Assessment Activity #2 – Senior Survey Assessment Activity #4 – Graduate Qualifying Exam
2007/08	Assessment Activity #1 – Department Advisory Committee Assessment Activity #2 – Senior Survey Assessment Activity #3 – Employer Survey
2008/09	Assessment Activity #1 – Department Advisory Committee Assessment Activity #2 – Senior Survey Assessment Activity #7 – Senior Seminar Presentations
2009/10	Assessment Activity #1 – Department Advisory Committee Assessment Activity #2 – Senior Survey Assessment Activity #4 – Graduate Qualifying Exam
2010/11	Assessment Activity #1 – Department Advisory Committee Assessment Activity #2 – Senior Survey Assessment Activity #5 – Alumni Survey
2011/12	Assessment Activity #1 – Department Advisory Committee Assessment Activity #2 – Senior Survey Assessment Activity #7 – Senior Seminar Presentations
2012/13	Assessment Activity #1 – Department Advisory Committee Assessment Activity #2 – Senior Survey Assessment Activity #6 – Course Embedded Assessment

**Plan for Incorporating  
Assessment Activity Results**

The outcomes assessment coordinator along with other faculty members that are involved in the animal sciences program will develop the additional surveys and the rubrics used to evaluate the senior seminar presentations and the graduate qualifying exams. In addition, this group of faculty will have the responsibility of gathering and evaluating the information generated through these assessment activities. Most importantly, this group of faculty will have the responsibility of making recommendations to the department on how these findings will be incorporated to improve the animal sciences program.

Each year, the Department of Animal Sciences and Agricultural Education has a two-day retreat during the summer months. The focus of this retreat last year and in future years will be the recommendations on how to incorporate the findings from outcomes assessment. Each year at the retreat, the department will decide on a plan for incorporating changes that need to be made for program improvement. After this plan is developed each year, it will be given to our department advisory committee and their input will be considered before the plan is incorporated into our animal sciences program.

## *2. Curriculum*

### *a. Structure/Coherence of Instructional Program*

Curriculum changes have been discussed over the summer that will change some aspects of the course requirements for students in the different options/emphases. The most notable change is a reduction in the size of the core (which is the same for all options/emphases) and a shifting to or substitution of former core courses in the career specialization and/or additional requirement sections. The largest impact of these changes will be in the science option, with the emphases in pre-veterinary medicine and basic science (which will be changed to pre-professional science). Students in these emphases will now take fewer total animal science courses, substituting chemistry and biology courses. In the past, students preparing for veterinary school admission were required to take a large number of animal science courses to meet the requirements for the B.S. degree in animal science and were also taking a large number of biology and chemistry courses to meet veterinary school requirements. This curriculum change will allow more of the biology and chemistry courses to count towards degree requirements at the expense of some of the animal science courses formerly required. After much discussion within the department, with consideration of the relative benefit of the animal science vs. biology/chemistry courses towards meeting the student's educational goals, it was decided to make these changes. Draft curricula for the new degree requirements in each option/emphasis are shown in the appendix. Curriculum change requests will be submitted for inclusion in the 2007-2008 university catalog.

### *b. Cooperative Efforts with Other Academic Programs – Joint Degrees, Service Courses, General Education Courses*

As stated above, cooperative efforts are being made to produce/deliver a genetics course, team taught and applicable to both animal science and plan science majors. Discussions have also been had, but no action plan has been implemented, to teach a course in microbiology, either within the department or in cooperation with faculty from plant science and/or food science. Results of our survey of seniors indicates marked dissatisfaction with the Microbiology 20 course our students are currently required to take.

## *3. Recruitment, Retention and Student Services*

The faculty plan to continue to be leaders within the college in recruitment through extracurricular activities and community service events. University mandatory advising, at least a one-time advising to review the student's roadmap, is in place within the department.

The results of the senior survey indicate some dissatisfaction with advising at the department level, particularly regarding course requirements for graduation. This should be addressed by the faculty.

## *4. Community Interactions (Professional, Disciplinary, Industry/Regional)*

The department will continue its commitment to stay involved with the agricultural community through its various outreach events discussed above.

*C. Resources*

*1. Financial/Budgetary*

No changes are known at this time.

*2. Faculty/Staff*

*a. Adequacy and Availability*

Two new faculty hires in Animal Science are very highly anticipated. Not just more help with teaching, but new ideas for curriculum development, recruiting, research and university/community service are expected with new people in our program.

Improved staffing for maintenance and improvement of the University Farm Laboratory is needed. Where/how funds are found for this are not known.

*b. Professional Development/Travel Support*

University/CAST support for professional development are appreciated and have been utilized by Animal Science faculty. More opportunities for backfill into courses for faculty leaves, whether for sabbatical leaves or simply for some release time, would give more opportunities for faculty to pursue research opportunities or professional development to enhance their own knowledge, enthusiasm for teaching, and teaching materials.

*c. Professional Achievements/Contributions*

Faculty will continue to make professional achievements and contributions as possible.

*3. Implementation and Currency of Technology*

The animal science program hopes to benefit in the future from the campus wide information technology upgrade efforts. New technologies in animal production, research, or teaching methods will be adopted as they become available.

*4. Other*

*a. Space – Classrooms, Laboratories, Offices*

The department knows of no plans to augment current classroom or laboratory spaces available to the Animal Science program. A change in the way in which classrooms are assigned to courses would benefit the department if it allowed for large classes to be taught in suitably large classrooms and if classes could be more often held in the Agriculture building instead of at different locations across campus.

Rumors regarding the master plan for the campus suggest that land south of Barstow might be taken from the University Farm Laboratory and used for academic or commercial purposes. The impact on the animal units located south of Barstow, ie, the sheep unit, student horse center and rodeo arena, is not known, but likely will be negative if no plan for their relocation and continued existence is made.

*b. Library Assets*

The major renovation underway at the Madden Library will no doubt have a positive effect on general student use of the library for research and studies. Improved computer technology has already increased our students' ability to search for technical documents. Whether the library improvements will also help students not just find on-line citations, but also get actual access to scientific information, is not known in this department.

*V. Additional Issues*