Program Assessment Report
DBCALFS ANSC BS Program
University of Arkansas
Academic Year 2018-2019

1. **Animal Science Department, B111 AFLS, 575-3745**

2. **Department Mission:**

   The Department of Animal Science shall be a leading authority of animal agriculture by means of innovative research, teaching and extension programs for all Arkansans and the world.

3. **Program Goals:** The Department of Animal Science will 1) perform research from discovery to application that benefits the production efficiency, animal health/well-being, food safety/security, and sustainability of animal agriculture, **2) recruit, educate, and prepare for the future, a new generation of citizens that will provide expertise in food production, animal health/well-being, as well as human health and nutrition,** and 3) provide research-based livestock and forage information through non-formal educational methods for the sustainability and management of agricultural production systems to improve Arkansans quality of life.

4. **Student Learning Outcome #1**
   Students will demonstrate an understanding of scientific knowledge and gain a basic foundation in the general animal sciences, including physiology, genetics, nutrition, muscle foods, as well as demonstrate production management skills

   A. Assessment Measure 1 – Direct
      - A pre- and post-assessment was conducted for incoming freshman and graduating seniors.
      - A 70 question assessment tool was developed by the student assessment committee from questions that were created by the ANSC faculty (used for the 1st time in 2016, modified in spring 2018). The test was administered to students in ANSC 1032 Introduction to Animal Sciences (predominately freshmen ANSC majors, but not exclusively) in the Fall 2018 and Spring 2019 semesters and to outgoing seniors by appointment (Administrative Specialist obtains a list of graduating seniors each semester from the Dean's office then contacts these students through e-mail) both December 2018 and May 2019 graduates. Of the 61 names of graduating students in ANSC, 36 (59%) came in to the office and completed a survey and 40 completed the Assessment Exam (66%).

- The 2019 scores and change in percentage correct between the pre and post assessments are reported below

Freshman, % correct (n = 177)	Senior, % correct (n = 40)	Percentage Unit Change in % correct	Improvement
38.31 No student had >70% correct (highest score was 69%)	69.31 20 students (50%) had >70% correct	+31%	81%

- This is an improvement of 31 percentage units from the freshmen to the seniors. This compares to scores of 40.2 to 47.1 for freshmen in previous years and 70.8 to 71.2 for seniors in prior years this instrument was used.
- The target for the student pre, post assessment, as determined by the departmental committee was there would be 70% of graduating seniors that scored 'average' or above. If average is set at 70% on the exam then 50% of the seniors that took the assessment met this goal. Thus, this does not reach the acceptable level as determined by the department.
- Another goal was that acceptable be a 70% improvement in scores between the pre and post assessment, and an ideal outcome would be a 90% improvement in scores. Our results for 2019 are an improvement of 81% in the scores – this reaches the acceptable level. The range for improvement in prior years (2016-2018) has been 50 to 77%.

- **In summary:**
  o No students in the freshmen course scored greater than 70% correct (range of 69 to 14% correct); however, 50% of the seniors scored greater than 70% correct (range of 84 to 45% correct). It would appear that the department is improving the understanding of scientific knowledge in the Animal Sciences
    o There were 7 questions on the assessment instrument that were correctly answered by <50% of the seniors. These questions were distributed throughout the disciplines (1 physiology, 1 nutrition, 3 meat science, and 2 management); they were not concentrated within any single discipline.
  - The rigor of the assessment and the appropriate metric for 'acceptable' requires continued discussion within the department. While 2016 had limited numbers of students (39 freshmen and 25 seniors), results from 2017 to 2019 with more students were remarkably similar. Therefore, it appears that the assessment tool we are using is providing consistent results. In 2019, the department met the goal of a 72% improvement in scores.

B. Assessment Measure 2 - Indirect
- A self-assessment student survey was administered to graduating seniors to determine understanding and knowledge related to the animal sciences.
- A 26 question survey was developed by the student assessment committee. This survey was administered to outgoing seniors by appointment concurrently with the assessment

above.
- An invitation to have an Exit Interview with the Department Head was also extended to survey participants.
- Results: 40 surveys were distributed and 36 were returned, a 90% response rate. However, there were 61 students identified by the Dean as graduating in ANSC, so we are getting data on only 59% of the seniors. Results from the respondents are as follows:

Do you have a pre-professional/pre-vet concentration?   **17 (47%) Yes**

Do you have an equine concentration/minor?   2 **(6%) Yes**

Of the 36 students there were 2 (6%) with double majors (POSC, CROP); and there were 8 (22%) with minors (4 in AGBS, 1 each in EQSC, BIOL, HMDV, and COMM).

On a scale of 1 – 5, please rate your general competence in the areas listed below.
1 = I don't feel competent in this area; 5 = I feel I have a general competence in this area

	Area of Competence	Score (1-5)
1	Physiology	3.47
2	Genetics	3.69
3	Nutrition	3.72
4	Meat Production	2.78
5	Animal production management & animal welfare and sustainability practices	4.17
6	Animal handling, restraint and general animal care skills	4.61
7	Technical competency	3.89
8	Environmental consciousness	4.06
9	Ethical responsibility	4.67
10	Leadership ability	4.56
11	Oral communication	4.33
12	Written communication	4.25
13	Critical thinking/problem solving skills	4.47
14	Basic and applied research skills	3.97
15	Creativeness	4.33
16	Writing and presenting scientific information in a professional manner	3.81

For Equine concentration/minor ONLY:

17	Equine reproduction management	3.0
18	Fundamentals of equine care	3.0
19	Equine evaluation	3.25
20	Equine marketing	2.75

For Pre-professional, Pre-vet ONLY:

21	General knowledge of advanced disciplines of basic sciences and mathematics	4.44
22	Fundamentals of animal health	4.81

Have you applied to vet or grad school?   **19 Yes (53%)**

Have you been accepted to vet or grad school?   **14 Yes (39% of total, 74% of applied)**

If not attending grad/vet school, do you have an offer of employment?   **7 Yes (39% of 18 respondents)**

Students listed the following as schools into which they were accepted or companies that had offered employment:

Vet School/ Grad School	Employment
Oklahoma State (mentioned 3 times)	Walmart
Univ. of Missouri/Tennessee/OSU	First National Bank of NWA
LSU/Missouri	Univ. of Arkansas Swine Unit
Louisiana State University/OSU/Tennessee	Animal Hospital
Kansas State	LVCC – Springdale Vet Clinic
Mississippi State	George's Hatchery
University of Kentucky	Stanton Animal Hospital
Lincoln Memorial University Virginia	
Lipscomb College of Pharmacy	
MS - ANSC	
Mississippi State Vet School	

- On the survey, students were also given the opportunity to comment on content areas that they felt the ANSC department should improve and on strengths of the ANSC department. Many students did supply comments and comments were variable, all comments are available for review upon request. The following is a summary.
    - Strengths:
        - There were **35 comments** on some variation of the theme that the department was a warm, welcoming, friendly, family-like environment where faculty/advisors and staff were willing to assist students in any way possible, Animal Science is the "most genuine and caring department on campus". The professors/advisors were "passionate", were "very knowledgeable in their fields", and create a "good learning environment".
        - There were 3 comments that a strength was the amount of hands-on learning opportunities.
        - There were positive comments about: the variety of courses, the production management classes, that material builds well from one class to the next, that it's well rounded information, that there are infinite leadership involvement opportunities, students are prepared for applying to vet school, there's good promotion of students' investigations or research, and that study abroad trips are amazing.
        - Specific courses mentioned under strengths were: Physiology, Repro-physiology, parasitology (2X), Animal Behavior, Nutrition (2X), and Animal handling.
    - Areas for improvement:
        - Content areas where there students suggested improvements included 6 comments about Physiology/Reproduction, 4 comments about Genetics, 3 comments about Nutrition courses, and individual comments about Dairy Sciences, Meat production, Statistics, Scientific Writing, Animal Handling, and Meat Science.
        - 5 students mentioned a desire for more hands-on, lab experiences with animals.

- 3 students mentioned a desire for more companion animal courses.
- 3 students questioned teaching effectiveness and amount of work required for the credits offered
- 3 students mentioned lack of flexibility in class times (only offering single sections)
- 2 students were dissatisfied with advising.
- 2 students encouraged more effective connections with the Poultry Science Department
- 2 students questioned an emphasis on pre-vet students
- 2 students wanted better communication about activities
- Individual students wanted more wildlife classes/clubs, more choices in the Animal elective, to try to make it more inviting for transfer students, a technology update, more quiet study places/homework spaces, to learn more about the environmental impact of farming practices, to write more research papers, and to listen to people with low GPAs (research opportunities for non-honors students).

- Finally, upon returning the survey instrument students were given an invitation to set up an appointment with Dr. Looper, the Department Head, for an exit interview. For several years, the Department Head of Animal Science has conducted exit interviews with graduating seniors. This is a summary of 11 (of 61 students that applied for graduation through the Dean's office; 18% of graduating seniors are represented in the comments below) vis-à-vis interviews conducted by the Department Head.
  - Virtually all graduating seniors were complimentary of the quality of advising and instruction in the Department of Animal Science, and the availability of faculty and one-on-one care for students. They expressed that faculty and staff created a "family and home" atmosphere. The interviews showed that most students approved of overall quality of instruction, curricula design, staff interactions, and student satisfaction. One suggestion was for Animal Science to incorporate/overlap more with poultry science courses.
  - Students particularly appreciate courses and activities where they get 'hands on' experience with livestock or in the laboratory. Some 'favorite' courses mentioned were: Diseases, Applied Nutrition, Animal Behavior, Comparative Veterinary Anatomy, and Equine-Assisted Activities and Therapy. Some difficult and/or 'not favorite' courses included Reproductive Physiology, Career Preparation, Zoology (not an ANSC course). Specific activities mentioned included: Livestock Judging Team, REPS (Recruiting, Educating, Promoting Scholars), Quadrathlon Team, Meats Quiz Bowl, and Honors/Undergraduate Research Projects.
  - Students that took advantage of the study abroad/international experiences thoroughly enjoyed it and would highly recommend to other students. Students' main reason for not getting involved in the study abroad courses cited expense and time commitment as major drawbacks for not being involved. Students were very complimentary of the Honors program and their Honors mentor. A few students suggested a more structured timeline of due dates and a need to improve overall communication from the Honors office.
  - A majority of the exiting students interviewed had been accepted into

veterinarian medicine schools or graduate programs.

- **In summary:**
  - o The average score for the 16 areas of competence was 4.05 compared with 4.16 on last year's survey, 4.02 in 2017, and 4.09 in 2016, using the 1 = 'I don't feel competent in this area to 5 = 'I feel I have a general competence in this area' scale. The lowest ranked area of competence continued to be meat production (score of 2.78). This score for meat production was 3.2 in 2018, 2.85 in 2017, and 2.5 in 2016. All the other areas of competence had scores of ≥ 3.47).
  - o Students are deeply appreciative of the atmosphere within the department.

5. **Student Learning Outcome #2:**
   Students will possess problem solving skills.

   A. Assessment Measure 3 – Direct
      - Rubric for **problem solving** skills (a scale of 1 to 4, with 1 = Benchmark and 4 = Capstone) was developed and distributed to appropriate course instructors. This Problem Solving rubric is within the Written and Oral Presentation rubrics (attached to report).
      - Rubric was used to assess graduating seniors in ANSC senior level courses.
      - Results: Scores for this rubric were returned by 2 faculty (for 3 courses).

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC4452	6	3.58	33%	67%	0%	0%
ANSC 4552	5 (2 scores each)	3.3	40%	50%	10%	0%
ANSC 4652	6 (2 scores each)	3.00	17%	67%	17%	0%
Total	**17**	**3.30**	**29%**	**62%**	**9%**	**0%**

- **In summary:**
  - o The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2019, 91% of the students have a score ≤ 3 and thus the department met this goal.

6. **Student Learning Outcome #3:**
   Students will possess critical thinking skills and objectively make decisions about contemporary issues based upon scientific facts rather than emotion.

   B. Assessment Measure 4 – Direct
      - A rubric for **critical thinking** skills (a scale of 1 to 4, with 1 = Benchmark and 4 = Capstone) was developed and distributed to appropriate course instructors. This critical thinking rubric is within the Written and Oral Presentation rubrics (attached to report).
      - Rubric was used to assess graduating seniors in ANSC senior level courses.
      - Results: Scores for this rubric were returned by 2 faculty (for 3 courses).

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC 4252	6	3.0	0%	100%	0%	0%
ANSC 4552	5 (2 scores each)	3.7	70%	30%	0%	0%
ANSC 4652	6 (2 scores each)	3.00	17%	67%	17%	0%
Total	**17**	**3.21**	**26%**	**68%**	**6%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an average or above. In 2019, 94% of the students assessed with the rubric scored ≤ 3, thus the department met this goal.

7. **Student Learning Outcome #4.**
   Students will demonstrate basic oral (Outcome 4a) and written (Outcome 4b) communication skills and demonstrate the ability to write and present information in a professional manner.

   A. Assessment Measure 5 - Direct
   - A rubric has been created to assess **oral communication** skills. It contains 6 performance areas with a 1 to 4 scale within each of those areas (attached to report).
   - Rubric was used to assess graduating seniors in ANSC senior level courses.
   - Results: Scores for this rubric were returned by 3 faculty (for 4 courses).

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC 4452	6	3.79	33%	67%	0%	0%
ANSC 4252	6	3.66	33%	67%	0%	0%
ANSC 4552	5	2.83	0%	60%	40%	0%
ANSC 4652	6	2.55	0%	17%	83%	0%
Total	**23**	**3.22**	**17%**	**52%**	**30%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2019, 70% of the students assessed with the rubric scored ≤ 3, thus the department just met this goal.

   B. Assessment Measure 6 – Direct
   - A rubric has been created to assess **written communication** skills. It contains 6 performance areas with a 1 to 4 scale within each of those areas (attached to report).
   - Rubric was used to assess graduating seniors in ANSC senior level courses.
   - Results: Scores for this rubric were returned by 2 faculty (for 3 courses).

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC 4452	6	3.71	33%	67%	0%	0%
ANSC 4552	5	3.43	20%	60%	20%	0%
ANSC 4652	6	3.19	33%	33%	33%	0%
Total	**17**	**3.44**	**29%**	**53%**	**18%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2019, 82% of the students have a score ≤ 3 and thus the department met this goal.

8. **Overall Recommendations**

There was growth in scientific knowledge from Freshman to Seniors, and where there were errors on the exam by the seniors they were distributed across disciplines, not concentrated within any one discipline.

There were greater than 70% of the seniors that were rated acceptable in problem solving, critical thinking, and communication (both oral and written) skills based on the rubrics developed by the Assessment Committee. It remains a challenge to gather this data from the ANSC senior courses. All senior level Animal Science production courses probably have projects or assignments where some or all of these rubrics could be used; however, it was difficult for some instructors to incorporate them into a course. A common problem is that the course uses team projects vs. individual student's work for these type projects. Another issue is that ANSC majors often do not take these 4000 level courses only in their senior year. They commonly take them as juniors. In this report, the scores only include those students graduating in December 2018 or May 2019. We are missing a number of observations because of how we use these rubrics.

9. **Action Plan**

   a. At a teaching retreat in May 2019 a plan to add a senior capstone course to the department's curriculum was developed. A single senior capstone course, required for graduation, would enhance our ability to collect the necessary data for the assessment report.

   b. The departmental Assessment Committee should consider continuing to improve upon the information captured in the surveys given to the seniors. Suggestions for improvements include adding to the exit surveys the following questions:

      i. How well did you achieve each of the following departmental learning goals? We simply rewrite as learning objectives and have students self-rate.

      ii. What aspects of your education in this department helped you with your learning and why were they helpful?

      iii. What might the department do differently that would help you learn more effectively, and why would these actions help you? We currently get to this in a round-about way. We just need to rewrite question.

      iv. In the Area of competence portion, include another column allowing students to rate their perceived competence level as freshman – then we can see their perceived growth in each area and get another data point. As an example:

	Area of Competence	Score (1-5) Rate your general competence in this area before you started at the University	Score (1-5) Rate your general competence in this area NOW, as a graduating senior
1	Physiology		
2	Genetics		