Program Assessment Report
DBCAFLS ANSC BS Program
University of Arkansas
May 2017

1. **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). The test was administered to students in ANSC 1032 Introduction to Animal Sciences (predominately freshmen ANSC majors, but not exclusively) 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). Of the 49 names of graduating students in ANSC, 42 came in to the office and took the Assessment Exam (86%).
   - The 2017 scores and change in percentage correct between the pre and post assessments are reported below

Freshman, % correct (n = 140)	**Senior, % correct (n = 42)**	**Percentage Unit Change in % correct**	**Improvement**
47.1 2 students had >70% correct (highest score was 72%)	70.81 19 students (45%) had >70% correct	+23.7%	50%

   - This is an improvement of 23.7 percentage units from the freshman to the seniors. This compares to scores of 46.2 and 70.98 for Freshman and Seniors, respectively, in 2016.
   - 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 45% 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 2017 are an improvement of 50% in the scores – this does not reach that acceptable level.
   - **In summary:**
     - Only 2 students in the freshmen course scored greater than 70% correct (range of 72 to 0% correct); however, 45% of the Seniors scored greater than 70% correct (range of 90 to 55% correct). It would appear that the department is improving the understanding of scientific knowledge in the Animal Sciences
       - There were 7 questions on the assessment instrument that were correctly answered by <50% of the Seniors. These questions were distributed throughout the

disciplines (3 physiology, 1 genetics, 1 nutrition, 1 management, and 1 animal health); 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 Freshman and 25 Seniors), results from 2017 with more students were remarkably similar. Therefore, it appears that the assessment tool we're using is providing consistent results.

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.
- Results: 42 surveys were distributed and 40 were returned, a 95% response rate. However, there were 49 students identified by the Dean as graduating in ANSC, so we are getting data on only 82% of the Seniors. Results are as follows:

Do you have a pre-professional/pre-vet concentration? **14 (35%) Yes**

Do you have an equine concentration/minor? **9 (22%) Yes**

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	**3.52**
2	Genetics	**3.18**
3	Nutrition	**3.90**
4	Meat Production	**2.85**
5	Animal production management & animal welfare and sustainability practices	**4.38**
6	Animal handling, restraint and general animal care skills	**4.50**
7	Technical competency	**3.85**
8	Environmental consciousness	**4.12**
9	Ethical responsibility	**4.45**
10	Leadership ability	**4.48**
11	Oral communication	**4.30**
12	Written communication	**4.45**
13	Critical thinking/problem solving skills	**4.30**
14	Basic and applied research skills	**4.02**
15	Creativeness	**4.10**
16	Writing and presenting scientific information in a professional manner	**3.95**

For Equine concentration/minor ONLY:

17	Equine reproduction management	**4.10**
18	Fundamentals of equine care	**5.00**
19	Equine evaluation	**4.40**
20	Equine marketing	**4.60**

For Pre-professional, Pre-vet ONLY:

21	General knowledge of advanced disciplines of basic sciences and mathematics	**4.00**

22 Fundamentals of animal health **4.62**

Have you applied to vet or grad school? **11 (28%) Yes**

Have you been accepted to vet or grad school? **6 (15% of total, 54% of applied) Yes**

If not attending grad/vet school, do you have an offer of employment? **12 (30%) Yes**

Vet School/ Grad School	Employment
University of Texas - Dallas	**Tyson**
University of Tennessee – College of Pharmacy	**Best Friends Animal Hospital**
University of Arkansas	**Animal Medical Clinic**
Louisaina State University	**Invision Eyecare**
LSU-SVM, Kansas State, Illinois	**Washington DC, with a lobbyist**
Mississippi State College of Veterinary Medicine	**JB Hunt**
	Disney World Animal Kingdom
	Huntsville Vet Clinic
	Clearwater Marine Aquarium - Internship
	Merck Animal Health
	Goosehead Insurance
	Sombrero Ranch, Estes Park, CO

- 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. All comments are available as an attachment, many students did supply comments and comments were highly variable. The areas that emerged with the most overlap included for the content areas where there could be improvement, 7 comments about Physiology/Reproduction being difficult courses. Five students also mentioned a desire for more hands-on, lab experiences with animals, including for the physiology/reproduction courses. As for strengths, there were 21 comments on some variation of the theme that the department was a warm, welcoming, friendly, family-like environment where faculty and staff were willing to assist students in any way possible. There were 5 comments that a strength was the amount of hands-on learning opportunities.
- **In summary:**
  - The average score for the 16 areas of competence was 4.02 compared with 4.09 on last year's survey, 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 2.85 [this improved from 2.5 in 2016]) followed by genetics (score of 3.18 [score of 3.15 in 2016]). These 2 areas were outliers from all the other areas of competence (remainder had scores of ≥ 3.52).

2. 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 4 faculty.

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC4252	8	3.375	37.5	62.5%	0%	0%
ANSC 4173	8	3.66	62.5%	37.5%	0%	0%
ANSC 4482	10	3.6	70%	20%	10%	0%
ANSC 4652	1	3	0%	100%	0%	0%
Total	**27**	**3.53**	**55%**	**41%**	**4%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2017, 96% of the students have a score ≤ 3 and thus the department met this goal.

3. 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 3 faculty.

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC4252	8	3.375	25%	75%	0%	0%
ANSC 4173	8	3.59	62.5%	25%	12.5%	0%
ANSC 4652	1	3	0%	100%	0%	0%
Total	**17**	**3.45**	**41%**	**53%**	**6%**	**0%**

- **In summary:**

- The target for the Department was that 70% of graduating seniors would score an average or above. In 2017, 94% of the students assessed with the rubric scored ≤ 3, thus the department met this goal.

4. **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

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC4252	8	3.715	62.5	37.5%	0%	0%
ANSC 4173	8	3.5	37.5%	50%	12.5%	0%
ANSC 4652	1	3	0%	100%	0%	0%
Total	**17**	**3.57**	**41%**	**53%**	**6%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2017, 94% of the students assessed with the rubric scored ≤ 3, thus the department 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:

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC4252	8	3.25	50%	12.5%	37.5%	0%
ANSC 4173	8	3.44	37.5%	50%	12.5%	0%
ANSC 4482	10	3.6	70%	20%	10%	0%
ANSC 4652	1	3	0%	100%	0%	0%
Total	**27**	**3.53**	**52%**	**30%**	**18%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2017, 82% of the students have a score ≤ 3 and thus the department met this goal.

5. Overall Recommendations

The Animal Science Department needs to clarify the targets for acceptable and ideal performance based on the rubrics that have been developed.

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. In 2016, only 6 students were assessed with these rubrics. While in 2017 these numbers increased, it was still a challenge to gather this data. 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 2016 or May 2017. We are missing a number of observations because of how we use these rubrics. In the spring of 2017, to get this data, these rubrics were used in a course that is not a capstone 'production course'.

6. Action Plan

a. **The Animal Science Department Assessment Committee needs to spend time in clarifying the acceptable and ideal targets for these assessments.**
b. **The Animal Science Department Assessment Committee should encourage the use of the developed rubric in all 4000 level ANSC courses to maximize the number of results we get from seniors.**
c. **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		
3	Nutrition		

d. **The Animal Science faculty must also discuss the possibility of a single senior capstone course that would enhance our ability to collect the necessary data for the assessment report.**
    i. **If this is not the will of the department then faculty teaching the ANSC production courses need to attempt to incorporate all rubrics into their syllabi and courses.**