Program Assessment Report
DBCALFS ANSC BS Program
University of Arkansas
May 2018

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, 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 2017 semester 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 2017 and May 2018 graduates. Of the 54 names of graduating students in ANSC, 43 came in to the office and 42 completed the Assessment Exam (78%).
   - The 2018 scores and change in percentage correct between the pre and post assessments are reported below

Freshman, % correct (n = 135)	Senior, % correct (n = 42)	Percentage Unit Change in % correct	Improvement
40.19 No student had >70% correct (highest score was 66%)	71.19 21 students (50%) had >70% correct	+31%	77%

   - This is an improvement of 31 percentage units from the freshmen to the seniors. This compares to scores of 46.2 (2016) and 47.1 (2017) for freshmen and 70.98 (2016) and 70.81 (2017) 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 2018 are an improvement of 77% in the scores – this

reaches the acceptable level. This is an improvement from prior years – there was a 54% and a 50% improvement in 2016 and 2017, respectively.

- **In summary:**
  o No students in the freshmen course scored greater than 70% correct (range of 66 to 19% correct); however, 50% of the seniors scored greater than 70% correct (range of 93 to 53% correct). It would appear that the department is improving the understanding of scientific knowledge in the Animal Sciences
    o There were 10 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, 2 nutrition, 1 meat science, 2 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 freshmen and 25 seniors), results from 2017 and 2018 with more students were remarkably similar. Therefore, it appears that the assessment tool we are using is providing consistent results. In 2018, the department met the goal of a 77% improvement in scores; however, this was due to a slight increase in the scores of seniors and a larger decrease in the scores of freshmen.

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: 43 surveys were distributed and 40 were returned, a 93% response rate. However, there were 54 students identified by the Dean as graduating in ANSC, so we are getting data on only 74% of the seniors. Results are as follows:

Do you have a pre-professional/pre-vet concentration?   **17 (42.5%) Yes**

Do you have an equine concentration/minor?   4 **(10%) Yes**

Of the 40 students there were 3 (7.5%) with double majors (POSC, PSYC, AGBS); and there were 18 (45%) with minors (12 in AGBS, 2 in EQSC and SPAN, and 1 each in NRMG, POSC, SUST, BIOL, and CHEM [2 students had 2 minors – AGBS/CHEM and AGBS/EQSC]).

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	3.74
2	Genetics	3.75

3	Nutrition	**3.77**
4	Meat Production	**3.2**
5	Animal production management & animal welfare and sustainability practices	**4.22**
6	Animal handling, restraint and general animal care skills	**4.62**
7	Technical competency	**3.92**
8	Environmental consciousness	**3.98**
9	Ethical responsibility	**4.72**
10	Leadership ability	**4.62**
11	Oral communication	**4.52**
12	Written communication	**4.22**
13	Critical thinking/problem solving skills	**4.52**
14	Basic and applied research skills	**4.35**
15	Creativeness	**4.2**
16	Writing and presenting scientific information in a professional manner	**4.18**

For Equine concentration/minor ONLY:

17	Equine reproduction management	**4.4**
18	Fundamentals of equine care	**5**
19	Equine evaluation	**4.6**
20	Equine marketing	**4.6**

For Pre-professional, Pre-vet ONLY:

21	General knowledge of advanced disciplines of basic sciences and mathematics	**4.59**
22	Fundamentals of animal health	**4.76**

Have you applied to vet or grad school? **20 Yes (50%)**

Have you been accepted to vet or grad school? **16 Yes (40% of total, 80% of applied)**

If not attending grad/vet school, do you have an offer of employment? **16 Yes (73% of 22 respondents)**

Vet School/ Grad School	Employment
Univ. of Missouri/Mississippi State/Oklahoma State	**Military/Govt. and vet assistant at equine vet office**
LSU/Mississippi State/Univ. of Missouri/OSU	**Vet Assistant in Florida**
University of Arkansas (mentioned twice)	**Cobb-Vantress**
Louisiana State University	**Wedington Animal Hospital**
LSU-SVM, Kansas State, Oklahoma State/Iowa State	**Univ. of Arkansas Food Science Lab Tech**
Mississippi State College of Veterinary Medicine	**Accent Blinds and Shutters**
New Mexico State	**All Pets Animal Hospital**
University of Denver Social Work Masters Program	**Internship with Disney college program**
St. Matthews University	**Country Vet Services**
Tufts	**Tyson (mentioned 4 times)**
Texas A and M	**River Valley Animal Hospital**
Univ. of Arkansas AG Economics graduate school	**Livestock Nutrition Center**
Ross University	**JB Hunt**
University of Florida	

- 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 **28 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. The professors/advisors were "fantastic", "approachable and educated", and "individualized discussion regarding coursework, academics, and preparation for graduation".
        - There were 8 comments that a strength was the amount of hands-on learning opportunities.
        - There were positive comments about: exposure to careers in ANSC; and animal health/physiology, nutrition, meat science, equine, and production courses.
    - Areas for improvement:
        - Content areas where there students suggested improvements included 3 comments about Physiology/Reproduction, 3 comments about Genetics, and 2 comments about Parasitology courses.
        - 6 students mentioned a desire for more hands-on, lab experiences with animals.
        - 4 students mentioned a desire for more companion animal courses.
        - 3 students were dissatisfied with advising.

- Finally, upon returning the survey instrument students were given a slip of paper that served as an invitation to set up an appointment with Dr. Looper, the Department Head, for an exit interview. Fourteen students made appointments with him either in small groups or individually. During these meetings he asked the following questions:
    1. Why did you choose to attend the U of A?
    2. What was your concentration?
    3. Did you study abroad?
    4. Were you enrolled as an honors student?
    5. What was your favorite course(s)?
    6. What was your least favorite course?
    7. Did you belong to any clubs/ organizations?
    8. What are your post-graduation plans?
    - Most of the graduating seniors interviewed were general ANSC majors, 2 were ANSC pre-professional and 2 were double majors. Two students participated in study abroad courses and 2 were in the honor's college. Some students who did not participate in study abroad reported that cost was a barrier. Students who were not in the Honors College reported that time and coursework were barriers. There was no consensus amongst

participants concerning the courses they found the most and least favorite. Students reported a wide variety of courses as their favorite. Many students reported that they would have liked more hands-on classes. Multiple students reported that they appreciated the willingness/ helpfulness of ANSC faculty and staff.

- **In summary:**
  - The average score for the 16 areas of competence was 4.16 compared with 4.02 on last year's survey 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 3.2 but this continues to improve [2.85 in 2017 and 2.5 in 2016]). All the other areas of competence had scores of ≥ 3.74).

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 2 faculty.

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC4452	9	3.7	67%	33%	0%	0%
ANSC 4652	10 (2 scores each)	3.05	5%	95%	0%	0%
Total	**19**	**3.36**	**34%**	**66%**	**0%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2018, 100% 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
ANSC4452	9	3.7	67%	33%	0%	0%
ANSC 4252	12	3.9	92%	8%	0%	0%
ANSC 4652	10 (2 scores each)	2.9	5%	80%	15%	0%
Total	**31**	**3.52**	**56%**	**39%**	**5%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an average or above. In 2018, 95% 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
ANSC4452	9	3.8	78%	22%	0%	0%
ANSC 4252	12	3.5	50%	50%	0%	0%
ANSC 4652	10	2.9	0%	90%	10%	0%
Total	**31**	**3.39**	**42%**	**55%**	**3%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2018, 97% 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: Scores for this rubric were returned by 4 faculty

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC4452	9	3.9	89%	11%	0%	0%
ANSC 4283	12	3.4	33%	67%	0%	0%
ANSC 4652	10	2.7	0%	70%	30%	0%

ANSC 4482	12	3.9	92%	8%	0%	0%
Total	**43**	**3.49**	**53%**	**40%**	**7%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2018, 93% 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. In 2017 these numbers increased and have continued to increase in 2018; however, 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 2017 or May 2018. We are missing a number of observations because of how we use these rubrics.

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 continue to 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.