Program Assessment Plan  
(Poultry Science-Undergraduate Program)  
University of Arkansas  
March 2016

1. Department Name & Contact Information  
Department of Poultry Science  
1260 West Maple Street  
Fayetteville, AR 72704  
479.575.4952  
Dr. Michael T. Kidd, mkidd@uark.edu  
Patrice N. Sims, patrices@uark.edu

2. Department Mission  
The Center of Excellence for Poultry Science shall provide comprehensive programs in research,  
teaching, and extension dedicated to improving the lives of Arkansans associated with all  
components of the poultry industry by generating knowledge through research and putting that  
knowledge to use through education.

3. Program Goals  
The goal of the poultry science curriculum is to promote a fundamental understanding of  
poultry science across sub-disciplines, with an emphasis on the scientific basis underlying the  
poultry industry. The objective of the required POSC courses is to provide an overview of  
poultry-related careers, production practices, poultry anatomy, and disciplines that include  
physiology, diseases, genetics, nutrition, processing, and products.

4. Student Learning Outcome 1. Students will demonstrate knowledge of the basic principles of  
production, anatomy, physiology, genetics, nutrition, health, and disease identification as related to  
poultry.  
The following items apply to EACH Assessment Measure.

A. Poultry Pre and Post Assessment Test.  
- POSC has established a pre and posttest that will be administered the freshmen year in POSC  
1002 Introduction to Careers in Poultry Science and again in the senior year in POSC 4343  
Poultry Nutrition. This assessment will begin fall of 2016.  
- The Pre/Post Test is a direct measure.  
- The test includes questions from required poultry core courses: Poultry Nutrition 4343, Avian  
Anatomy 3554, Poultry Diseases 3323, Egg and Meat Technology 4314, Poultry Production 2343,  
and Poultry Breeder Management 2353.  
- The pretest and the posttest will be scored separately.

POSC Exit Survey  
- The Poultry Science Exit Survey is given during the senior year.
The survey is an indirect measure.

B. **Acceptable** and **Ideal Targets** (not required for indirect measures).
   - It is likely that the freshmen class will fare poorly on the pretest. We would expect an average score for the pretest to be less than or equal to 55%. We would expect an average score for the posttest to be greater than or equal to 76%.

C. **Key Personnel** (Department Head, Faculty, Department Administrative Manager).
   - Mike Kidd—department head, the class instructor, and Patrice Sims—department administrative manager

D. **Summary of Findings.**
   - As students matriculate through the program they will take the poultry science core classes.
   - The test will be administered fall 2016. Results will be available in the fall of 2016 for the first pretest. The first posttest will be administered fall 2020 and will be available fall of 2021. It is expected that students will fare poorly on the pretest. The posttest would show significant improvement. The students will gain this knowledge from the poultry science core courses. We would expect an average score for the posttest to be greater than or equal to 76%.

E. **Recommendations** (not required for indirect measures)
   - Currently, we do not have any recommendations. Any recommendations will be noted for AY 16-17 after the first pre-test.

5. **Student Learning Outcome 2. Students develop critical-thinking skills that apply to issues and problems faced by the poultry industry.**

   **Student Learning Outcome 3:** Students will be able to communicate summaries of lab activities, interpret results of problem-solving activities and summarize results of research in written and oral communication (Learning Outcome two & three are using rubrics as the direct measure)

   The following items apply to each Assessment Measure.

   **A. Rubrics for POSC Seminar Courses**
   - POSC has established rubric to be used in the seminar courses: POSC 4801 Seminar: Research Topics; POSC 4811 Seminar Professionalism; POSC 4821 Problem Solving; and POSC 4831 Processing Regulations
   - The Rubric is a direct measure.
   - Two rubrics: oral communications, and written communication will be used in the seminar courses.
   - POSC 4801: aim is to help undergraduate students assimilate the fundamentals of understanding research source value and how to read, understand orally present quality referred research publications.
   - POSC 4811: address issues associated with preparation for finding and retaining your first job in the poultry industry.
   - POSC 4821: real world problem solving of poultry production systems.
• POSC 4831: processing plant procedures and regulations with an emphasis on problem solving.

B. **Acceptable** and **Ideal Targets** *(not required for indirect measures).*
• The seminar course is taken during the junior or senior year; preferably the senior year. It is expected that 80% of the class will meet expectations 10% will exceed expectations and 5% will not meet the expectations.

C. **Key Personnel** *(Department Head, Faculty, Department Administrative Manager).*
• Mike Kidd—department head, the class instructor, and Patrice Sims—department administrative manager

D. **Summary of Findings.**
• The seminar courses consist of several oral presentations, written presentations, team building exercises as well as problem solving activities. Students would have gained the prerequisite skills for oral presentations and written presentations from previous poultry sciences courses and university core courses. The criteria set forth in the rubric will be explained for the assignments. Students at this level should be able to meet or exceed the criteria of the rubric.
• The written and oral rubric goes into effect for Fall 2016. Results will be available Spring 2017.

E. **Recommendations** *(not required for indirect measures)*
• Currently, we do not have any recommendations. Any recommendations will be noted for AY 16-17.

6. **Overall Recommendations**

   **None at this time.**

7. **Action Plan**

   **No action plan at this time.**

8. **Supporting Attachments**
   Pretest and Posttest
   Graduate Survey
   Oral Presentation Rubric
   Written Communication Rubric
Multiple Choice (circle the SINGLE BEST answer):

1) Marek's disease is characterized by:
   a. Neoplastic (cancer) disease only in old chickens
   b. Neoplastic (cancer) disease only in turkeys
   c. Neoplastic (cancer) disease involving the bursa of Fabricius
   d. Neoplastic (cancer) disease involving feather follicles and nerve tissue
   e. Neoplastic (cancer) disease usually causing tumors in the head

2) Lymphoid Leukosis:
   a. Is usually caused by poor sanitation
   b. Is prevented by appropriate vaccination
   c. Can be treated with antibiotics
   d. Often is associated with respiratory disease
   e. None of the Above

3) Infectious Bronchitis
   a. Is an extremely contagious upper respiratory disease
   b. Has both respiratory and uremic forms
   c. Has no effect on egg production
   d. A and B above
   e. None of the Above

4) Inflammation and atrophy of the bursa of Fabricius, immediately followed by bursal regression, immunosuppression and susceptibility to many other diseases is often the result of:
   a. Coccidiosis
   b. Mycoplasmosis
   c. Histomoniasis
   d. Infectious Bursal Disease
   e. Marek's Disease

5) Signs and lesions associated with Infectious Coryza include:
   a. Infraorbital Sinusitis, diarrhea and dyspnea in older chickens
   b. Infraorbital Sinusitis, facial swelling, coughing, sneezing, nasal discharge primarily in young immature chickens
   c. Infraorbital Sinusitis, facial swelling, coughing, sneezing, nasal discharge primarily in older mature chickens
d. Immunosuppression and susceptibility to other diseases

6) The incubation period for the turkey egg is:
   a. 21 days
   b. 23 days
   c. 25 days
   d. 28 days

7) The primary reason chickens are taken off feed before processing is to:
   a. Save money
   b. Prevent birds from gaining too much weight
   c. Reduce contamination
   d. Make the birds easy to catch

8) What is the primary role of ventilation in a commercial poultry barn during cold weather:
   a. Keep oxygen levels high
   b. Remove moisture
   c. Keep birds warm
   d. None of the above

9) During processing, the chicken carcass is placed in hot water in order to:
   a. Kill bacteria
   b. Loosen the feathers
   c. Make the birds cleaner
   d. None of these

10) Sudden Death Syndrome in broilers is associated with:
    a. Birds accidentally choking to death when they eat
    b. Aortic Rupture
    c. Poisoning
    d. None of the above

11) During the life of a broiler chicken, it may be fed as many as:
    a. One diet
    b. Two diets
    c. Four diets
    d. Eight diets

12) Litter quality can directly impact what part of a processed bird:
a. Wings  
b. Feet  
c. Breast meat  
d. Tenders

13) What organ plays a key role in the immune system in broiler chickens:

a. Kidneys  
b. Bursa of Fabricius  
c. Pineal gland  
d. Cloaca

14) Which of the following does not undergo biological regeneration occurs when a bird molts?

a. Feather  
b. Ovary  
c. Oviduct  
d. digestive system

15) Which of the following is not considered an egg abnormality?

a. Double yolk  
b. Membrane  
c. B-grade  
d. body check

16) How long are chicken eggs in the setter before transfer to the hatcher?

a. 14  
b. 16  
c. 18  
d. 20

17) What meat animal is indigenous to North America?

a. Chicken  
b. Duck  
c. Pheasant  
d. Turkey

18) Why are eggs turned during incubation?

a. Avoid embryo sticking to inner shell  
b. Stimulate embryo growth  
c. reduce incubation time  
d. shorten hatch window
19) Providing a balanced diet makes up this amount of total live cost of production.
   a. 35%
   b. 50%
   c. 70%
   d. 85%

20) A lack of this nutrient will cause the most serious nutritional deficiency.
   a. Carbohydrates
   b. Proteins
   c. Water
   d. Vitamins
   e. Minerals
   f. Fats and oils

21) Phytate is the name of an organic structure in cereal and legume grains that is primarily bound to this mineral. A commercially sold enzyme called phytase can be added to poultry feed for making this mineral available to poultry.
   a. Magnesium
   b. Cobalt
   c. Sodium
   d. Phosphorus
   e. Selenium

22) Warfarin (rat poison) and sulfaquinoxaline (coccidiostat) are well known anti-coagulants because they interfere with this vitamin.
   a. Vitamin A
   b. Vitamin C
   c. Vitamin K
   d. Vitamin D
   e. Folic acid

23) The gastrointestinal tract of poultry does not contain this anatomical structure.
   a. Cecum
   b. Rumen
   c. Proventriculus
   d. Gizzard
   e. Cloaca

24) Approximately how many pounds of feed are required to produce each pound of live weight gain in broilers grown to an average market weight?
25) As broilers age, their dietary energy/calorie needs _____ and their dietary protein needs _____.

a. Decrease, decrease  
b. Decrease, increase  
c. Increase, decrease  
d. Increase, increase

26) The primary protein-providing ingredient used in US poultry diets is:

a. Soybean meal  
b. Wheat  
c. Corn  
d. Meat and bone meal

27) Compared with meal/mash, which of the following is not an advantage of providing poultry feeds in the form of pellets/crumbles?

a. Improved flow of feed through bins/feeders  
b. Decreased feed segregation  
c. Reduced feed wastage  
d. Lower feed production cost

28) Which of these compounds is not classified as an amino acid?

a. Lysine  
b. Carotene  
c. Methionine  
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29) Which of these compounds would not potentially be included as part of a triglyceride?

a. Linoleic acid  
b. Glycogen  
c. Glycerol  
d. Linolenic acid

30) _____ is secreted by cells in the proventriculus (stomach) of poultry to aid in the denaturation/digestion of proteins.

a. Acetic acid  
b. Sulfuric acid
Short Answer:

31) The glandular stomach of the avian species is called the _____________; the muscular stomach of the bird is called the ____________.

32) The liver of the bird produces ____________ which is stored in the ________________.

33) The first branches off of the aorta in birds are the ________________arteries; the aorta curves to the ______ in birds.

34) The three meninges of the avian brain are the ____________________, ________________________, and ________________________.

35) The vein at the back of the thigh is the _________________, the artery at the front of the thigh is the ________________.

36) The three avian immunoglobulins are __________, _______ and ________________.

37) The avian testicle is innervated via the ________________ nerve. The ovary is drained via the ____________ vein.

38) The longest bone of the avian leg is the ____________________; the short tubular bone is the ________________.

39) The _____________ is the slit like opening in the hard palate of the bird that communicates with the sinuses and respiratory system of the head.

40) The avian heart is surrounded by a sac called the __________________________. The heart rate of a chicken is about ________________ beats per minute.
41) What is the process that inactivates all pathogenic bacteria (e.g. *Salmonella*) and is required of all liquid egg products?

42) Name the two proteins that are responsible for foaming ability (volume) and stability and indicate which protein is responsible for which characteristic.

43) As the egg ages, what two compounds evaporate during normal storage and what happens to the egg as a result?

44) What are two purposes of cooking poultry meat?

45) What is the moisture retention rule mandated by FSIS?

46) What are some problems that occur when stunning with amperage that is too high?

47) List four bacterial growth requirements

48) What are three pathogenic bacteria that are concerns in the poultry meat industry (on either raw or cooked product).

49) What are the two main functional proteins in further processed meats?

50) What are six unit operations of primary processing of poultry?
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### Undergraduate Oral Presentation:

Presented by: _________________________________  
Rubric – Completed by: _________________________________  
Date: ____________________

(To be completed by instructor. Please indicate any category not relevant to presentation)

<table>
<thead>
<tr>
<th>Attribute for ORAL</th>
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<td>__Well organized</td>
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<td>__Poor presentation</td>
<td>__Clear presentation</td>
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<td>__Poor communication skills</td>
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<td>__Responses exceed level expected B.S. degree</td>
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<td>__Student is able to discuss in depth the connection of thesis research to poultry science</td>
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Confidential Comments:
Undergraduate Written Paper:

Presented by: _________________________________

Rubric – Completed by: _________________________________ Date: ____________________

(To be completed by instructor. Please indicate any category not relevant to presentation)

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<td>Demonstrates exceptional originality</td>
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<td>Documentation is excellent</td>
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</table>

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