

**Program Assessment Plan  
(Poultry Science-Undergraduate Program)  
University of Arkansas  
May 2020**

**1. Department Name & Contact Information**

**Department of Poultry Science  
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**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.

In addition:

1. Graduates will have the knowledge in poultry science required to perform in industry related positions or continue their education in a professional program.
2. Graduates are able to integrate, examine, and assess new information to make knowledgeable decisions.
3. Graduates are able to use pedagogical skills to communicate effectively in oral and writing scenarios.

**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.**

(Department of Poultry Science AY 2019-2020)

- POSC has established a pre and post-test that will be administered the freshman year in POSC 1002 Introduction to Careers in Poultry Science and again in the senior year in POSC 4343 Poultry Nutrition. Fall 2019, POSC 1002 was combined with POSC 1012 to form POSC 410V Special Topics. The Poultry Science curriculum has undergone revisions for AY 2020. Effective fall 20, POSC 1002 and POSC 1012 will change to POSC 1003 Introduction to Poultry Science. Going forward, the pre-test will be given to students enrolled in POSC 1003.

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 pre-test and the post-test are scored separately.
- The pre/post-test is a direct measure.

#### **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 80%.

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

#### **D. Summary of Findings.**

- As students matriculate through the program, they will complete the poultry science core.
- The test was administered fall 2019 in POSC 410V Intro to Poultry Careers to 28 students. The average score for the pretest was 45%.
- The first post-test was scheduled to be administered spring 2020. Due to Covid 19, the department was unable to do so. The next post-test will be spring 2021. It is expected that students will fare poorly on the pre-test. The post-test should show a significant improvement. The students will gain this knowledge from the poultry science core courses. We would expect an average score for the post-test to be greater than or equal to 80%.

#### **E. Recommendations** (not required for indirect measures)

For AY 2020-2021 POSC will perform a comprehensive evaluation of the pre-test and post-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).**  
David Caldwell-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.
- POSC 4811- Two oral presentations were assessed. The class exceeded standards.
- POSC 4821-Two oral presentations and a group project was assessed. The class exceeded standards

**E. Recommendations (not required for indirect measures)**

- Currently, we do not have any recommendations.

## **6. Overall Recommendations**

- Pre and post-test along has provide to be a valid measure with assessing the content knowledge of the major.
- POSC Faculty need to review the test to see if any questions need to be changed.
- POSC Faculty need to review the senior survey and make any necessary changes.
- POSC Faculty need to review and update the rubrics.

## **7. Action Plan**

- Due to the upcoming changed to the curriculum and the general education core the department will have the opportunity to integrate new strategies into assessment.
- Since, the internship involves multiple reports it will be evaluated to see if it should be assessed.

## **8. Supporting Attachments**

Pre-test and Post-test

Graduate Survey

Oral Presentation Rubric

Written Communication Rubric

Name \_\_\_\_\_

Date \_\_\_\_\_

Major: Poultry Science \_\_\_\_\_ Animal Science \_\_\_\_\_ Other \_\_\_\_\_

**Classification:**

- A. Freshman
- B. Sophomore
- C. Junior
- D. Senior
- E. Transfer

**Poultry Pre and Post Assessment Test****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 day
- 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.
- 35%
  - 50%
  - 70%
  - 85%
- 20) A lack of this nutrient will cause the most serious nutritional deficiency.
- Carbohydrates
  - Proteins
  - Water
  - Vitamins
  - Minerals
  - 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.
- Magnesium
  - Cobalt
  - Sodium
  - Phosphorus
  - Selenium
- 22) Warfarin (rat poison) and sulfaquinoxaline (coccidiostat) are well known anti-coagulants because they interfere with this vitamin.
- Vitamin A
  - Vitamin C
  - Vitamin K
  - Vitamin D
  - Folic acid
- 23) The gastrointestinal tract of poultry **does not** contain this anatomical structure.
- Cecum
  - Rumen
  - Proventriculus
  - Gizzard
  - 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?

- a. 0.9
- b. 1.9
- c. 2.9
- d. 3.9

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
- d. Threonine

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

- c. Hydrochloric acid
- d. Ascorbic 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?





# Department of Poultry Science

## Graduating Senior Exit Interview

Name:

Address:

Telephone:

Email:

1. Why did you choose to study at the University of Arkansas, Fayetteville? :

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2. Reason for Choosing POSC:

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3. Most Liked Classes and why:

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4. Least Liked Classes and why:

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5. Do you feel prepared for the work force?

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6. Have you accepted a job yet? If yes, Please give company name and location

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7. Starting Salary: \_\_\_\_\_ per year.

8. If you have not accepted a job at this time are you planning to attend graduate school?

9. At any time did a professor or instructor discuss with you a career in research or teaching and/or attending graduate school as a first step in that direction? Yes\_\_\_\_\_ No\_\_\_\_\_

10. If you have not accepted a job and are not planning to attend graduate school do you want to be contacted in case companies contact the department looking for poultry science graduates? Contact info:

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11. In which term did you start your degree program? \_\_\_\_\_

12. Were you a transient student? If so, what college? \_\_\_\_\_

13. Who was your academic advisor? \_\_\_\_\_

14. Indicate your level of satisfaction with the supervision and guidance you received from your advisor.

- a. Low or poor
- b. Below average
- c. Average
- d. Above Average
- e. Excellent





15. While in school, how many hours per week did you typically work to earn money to support yourself?

- a. none
- b. 1-10 hrs/wk
- c. 10-20 hrs/wk
- d. More than 20 hrs/wk

16. My cumulative GPA ( U of A):

- a. 2.00 to 2.49
- b. 2.50 to 2.99
- c. 3.00 to 3.49
- d. 3.50 to 4.00

17. My GPA in my major is :

- a. 2.00 to 2.49
- b. 2.50 to 2.99
- c. 3.00 to 3.49
- d. 3.50 to 4.00

18. Technology Services

- a) Low or poor
- b) Below average
- c) Average
- d) Above Average
- e) Excellent





19. Library Services

- a) Low or poor
- b) Below average
- c) Average
- d) Above Average
- e) Excellent

20. Research Support : Access to faculty involved in research

- a) Low or poor
- b) Below average
- c) Average
- d) Above Average
- e) Excellent

21. Research Support: Access to up-to-date facilities such as laboratories, research centers, specialized training

- a) Low or poor
- b) Below average
- c) Average
- d) Above Average
- e) Excellent

22. Do you have any

comments: \_\_\_\_\_

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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)*

Attribute for ORAL	Does Not Meet Expectations <i>Provide a short explanation for each attribute That you select in this category.</i>	Meets Expectations	Exceeds Expectations
<b>Overall quality of presentation</b>	<input type="checkbox"/> Poorly organized <input type="checkbox"/> Poor presentation <input type="checkbox"/> Poor communication skills <input type="checkbox"/> Slides and handouts difficult to read	<input type="checkbox"/> Clearly organized <input type="checkbox"/> Clear presentation <input type="checkbox"/> Good communication skills <input type="checkbox"/> Slides and handouts clear	<input type="checkbox"/> Well organized <input type="checkbox"/> Professional presentation <input type="checkbox"/> Excellent communication skills <input type="checkbox"/> Slides and handouts outstanding
<b>Overall breadth of knowledge</b>	<input type="checkbox"/> Presentation unacceptable <input type="checkbox"/> Presentation reveals critical weakness in depth of knowledge in subject matter <input type="checkbox"/> Presentation does not reflect well developed critical thinking skills <input type="checkbox"/> Presentation is narrow in scope <input type="checkbox"/> No application to Poultry Science	<input type="checkbox"/> Presentation acceptable <input type="checkbox"/> Presentation reveals some depth of knowledge in subject matter <input type="checkbox"/> Presentation reveals above average critical thinking skills <input type="checkbox"/> Presentation reveals the the draw from knowledge in several disciplines <input type="checkbox"/> Application to Poultry Science evident	<input type="checkbox"/> Presentation superior <input type="checkbox"/> Presentation reveals exceptional depth of subject knowledge <input type="checkbox"/> Presentation reveals well developed critical thinking skills <input type="checkbox"/> Presentation reveals the ability to interconnect and extend knowledge from multiple disciplines <input type="checkbox"/> Presentation shows clear application to Poultry Science
<b>Quality of response to questions</b>	<input type="checkbox"/> Responses are incomplete or required prompting <input type="checkbox"/> Arguments are poorly presented <input type="checkbox"/> Respondent exhibits lack of knowledge in subject area <input type="checkbox"/> Response do not meet level expected of B.S. degree <input type="checkbox"/> Student does not realize the connection presented work to poultry science	<input type="checkbox"/> Responses are complete <input type="checkbox"/> Arguments are well organized <input type="checkbox"/> Respondent exhibits adequate knowledge in subject area <input type="checkbox"/> Response meet level expected of B.S. degree <input type="checkbox"/> Student adequately connects presented work to poultry science	<input type="checkbox"/> Responses are eloquent <input type="checkbox"/> Arguments are skillfully presented <input type="checkbox"/> Respondent exhibits superior knowledge in subject area <input type="checkbox"/> Responses exceed level expected B.S. degree <input type="checkbox"/> Student is able to discuss in depth the connection of thesis research to poultry science
<b>Overall assessment</b>	<input type="checkbox"/> Does not meet expectations	<input type="checkbox"/> Meets Expectations	<input type="checkbox"/> Exceeds Expectations

**Confidential Comments:**

## Undergraduate Written Paper:

Presented by: \_\_\_\_\_

Rubric – Completed by: \_\_\_\_\_

Date: \_\_\_\_\_

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

Attribute for WRITTEN	Does Not Meet Expectations <i>Provide a short explanation for each attribute that you select in this category</i>	Meets Expectations	Exceeds Expectations
<b>Overall quality of written content</b>	<input type="checkbox"/> Arguments are incorrect, incoherent, or flawed <input type="checkbox"/> Objectives are poorly defined <input type="checkbox"/> Demonstrated rudimentary critical thinking skills <input type="checkbox"/> Does not reflect understanding of Subject matter and associated literature <input type="checkbox"/> Demonstrates poor understanding of theoretical <input type="checkbox"/> Demonstrates limited originality <input type="checkbox"/> Displays limited creativity and insight	<input type="checkbox"/> Arguments are coherent and clear <input type="checkbox"/> Objectives are clear <input type="checkbox"/> Demonstrates average critical thinking skills <input type="checkbox"/> Reflects understanding of theoretical concepts <input type="checkbox"/> Demonstrates understanding of theoretical concepts <input type="checkbox"/> Demonstrates originality <input type="checkbox"/> Displays creativity and insight	<input type="checkbox"/> Arguments are superior <input type="checkbox"/> Objectives are well defined <input type="checkbox"/> Exhibits mature, critical thinking skills <input type="checkbox"/> Exhibits mastery of subject matter and associated literature <input type="checkbox"/> Demonstrates mastery of theoretical concepts <input type="checkbox"/> Demonstrates exceptional originality <input type="checkbox"/> Displays exceptional creativity and insight
<b>Quality of writing style</b>	<input type="checkbox"/> Writing is weak <input type="checkbox"/> Numerous grammatical and spelling errors <input type="checkbox"/> Organization is poor <input type="checkbox"/> Documentation is poor	<input type="checkbox"/> Writing is adequate <input type="checkbox"/> Some grammatical and spelling errors apparent <input type="checkbox"/> Organization is logical <input type="checkbox"/> Documentation is adequate	<input type="checkbox"/> Writing is publication quality <input type="checkbox"/> No grammatical or spelling errors apparent <input type="checkbox"/> Organization is excellent <input type="checkbox"/> Documentation is excellent
<b>Overall assessment</b>	<input type="checkbox"/> Does not meet expectations	<input type="checkbox"/> Meets Expectations	<input type="checkbox"/> Exceeds Expectations

**Confidential Comments:**