Poultry Science (POSC)

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Head of the Department  
0114 Poultry Science Center  
479-575-3699

Department of Poultry Science Website (https://poultry-science.uark.edu)

The Department of Poultry Science offers a major in poultry science leading to a Bachelor of Science in Agriculture. The department also offers coursework for a minor and a certificate of excellence program.

A major in poultry science is designed to provide the scientific and technical education to prepare students for positions of leadership and responsibility in the expanding fields of production, processing, marketing, and distribution of meat, eggs, and related poultry products. The curriculum also prepares students for career opportunities in specialized areas of nutrition, breeding, genetics, physiology, management, food science, immunology, and disease.

Elective hours allow students to select a minor and thus personalize their degree.

Elective hours can also be used to emphasize areas of business, production, processing or science. Pre-veterinary medicine, pre-medical, or pre-pharmacy requirements may be fulfilled while meeting degree requirements.

Curricula are designed to permit the student to obtain the necessary foundation to pursue graduate study for the master’s and doctoral degrees. Advanced degrees are offered but not limited to the areas of nutrition, genetics, physiology, product technology, and poultry health.

Requirements for a Major in Poultry Science (POSC)

State minimum core and discipline specific general education requirements:  
(Course work that meets state minimum core requirements is in bold.)

UNIV 1001 University Perspectives 1

Communications (6-12 hours) 6-12
  Two English Core Courses (unless exempt)
  COMM 1313 Public Speaking (ACTS Equivalency = SPCH 1003)
  Communication Intensive Elective (see Adviser)

U.S. History and Government (3 hours)
  One U.S. History and Government Course 3

Mathematics and Statistics (6-7 hours)
  One MATH Core Course 3-4
  Select one of the following: 3
    AGEC 2403 Quantitative Tools for Agribusiness
    STAT 2303 Principles of Statistics (ACTS Equivalency = MATH 2103)
    AGST 4023 Principles of Experimentation

Sciences (16-24 hours)
  BIOL 1543 & BIOL 1541L Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)
  and Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)
  BIOL 2013 & BIOL 2011L General Microbiology (ACTS Equivalency = BIOL 2004 Lecture)
  and General Microbiology Laboratory (ACTS Equivalency = BIOL 2004 Lab)

Select one of the following: 4-8
  CHEM 1073 & CHEM 1071LCHEM 1214 Lecture and Fundamentals of Chemistry Laboratory (ACTS Equivalency = CHEM 1214 Lab)
  CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1101LCHEM 1414 Lecture)
  & CHEM 1123 and University Chemistry I Laboratory (ACTS & CHEM 1121LCHEM 1414 Lecture and University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)

Select one of the following: 4-8
  CHEM 2613 Organic Physiological Chemistry (ACTS Equivalency = CHEM 1224 Lecture)
  & CHEM 2611L Organic Physiological Chemistry Laboratory (ACTS Equivalency = CHEM 1224 Lab)

Fine Arts and Humanities (6 hours)
  One Fine Arts and one Humanities Core Courses 6

Social Sciences (9 hours)
  AGEC 1103 Principles of Agricultural Microeconomics 3
  or ECON 2023 Principles of Microeconomics (ACTS Equivalency = ECON 2203)

Choose two Social Sciences Core Courses 6

Poultry Science Core
  POSC 1002 Introduction to Careers in Poultry Science 2
  POSC 1012 Avian Biology 2
  POSC 2343 Poultry Production 3
  POSC 2353 Poultry Breeder Management 3
  POSC 3223 Poultry Diseases 3
  POSC 3554 Avian Anatomy 4

Select one of the following: 3
  POSC 3123 Principles of Genetics
  POSC 4333 Poultry Breeding
  BIOL 2323 General Genetics
  POSC 4314 Egg and Meat Technology 4
  POSC 4343 Poultry Nutrition 3

Poultry Science Controlled Electives
Select 6 hours from the following: 6
  AGEC 2303 Introduction to Agribusiness
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Fall</th>
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<tbody>
<tr>
<td>BIOL 1543</td>
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<td>UNIV 1001</td>
<td>University Perspectives</td>
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<td>COMM 1313</td>
<td>Public Speaking</td>
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<td>POSC 1002</td>
<td>Introduction to Careers in Poultry Science</td>
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<td>FNAR/Humanities University Core Elective</td>
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<td>ENGL 1013</td>
<td>Composition I</td>
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<td>MATH 1203</td>
<td>College Algebra</td>
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Year Total: 16 14

**Second Year**

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<td>AGEC 1103</td>
<td>Principles of Agricultural Microeconomics</td>
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<tr>
<td>or ECON 2023 Principles of Microeconomics</td>
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<td>CHEM 1103</td>
<td>University Chemistry I</td>
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<td>&amp; CHEM 1073</td>
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<td>POSC 2353</td>
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**Third Year**

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<tr>
<td>BIOL 2013</td>
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<td>&amp; BIOL 2011L</td>
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<td>CHEM 3603</td>
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<td>General Elective</td>
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<td>POSC 4333</td>
<td>Poultry Breeding</td>
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<td>POSC/ANSC 3123 Principles of Genetics</td>
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Year Total: 16 14
PHYS 2013 College Physics I (ACTS Equivalency = PHYS 2014 Lecture)
& PHYS 2011L College Physics I Laboratory (ACTS Equivalency = PHYS 2014 Lab)
POSC 3032 Animal Physiology I
AGEC 2303 Introduction to Agribusiness
POSC 4811 Seminar: Professionalism
or POSC 4831 Seminar: Processing Regulations
Select one of the following:
CHEM 3613 Organic Chemistry II & CHEM 3611L Organic Chemistry II Laboratory
General Elective
Select one of the following:
PHYS 2033 College Physics II (ACTS Equivalency = PHYS 2024 Lecture)
& PHYS 2031L College Physics II Laboratory (ACTS Equivalency = PHYS 2024 Lab)
POSC 3042 Animal Physiology II
AGEC 2303 Introduction to Agribusiness
POSC 4213 Integrated Poultry Management Systems
Upper-Division POSC Elective
Discipline-Related Elective
Select one of the following:
General Elective
BIOL 2323 General Genetics
Year Total:

Fourth Year

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<tr>
<th>Units</th>
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<tr>
<td>POSC 3223 Poultry Diseases</td>
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<td>POSC 4314 Egg and Meat Technology</td>
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<td>Upper-Division POSC Elective</td>
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<td>POSC 4811 Seminar: Professionalism</td>
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<td>or POSC 4831 Seminar: Processing Regulations</td>
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<td>POSC 4343 Poultry Nutrition</td>
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<td>STAT 2303 Principles of Statistics (ACTS Equivalency = MATH 2103)</td>
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<td>AGST 4023 Principles of Experimentation</td>
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<td>PHYS 2033 College Physics II (ACTS Equivalency = PHYS 2024 Lecture)</td>
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<td>&amp; PHYS 2031L College Physics II Laboratory (ACTS Equivalency = PHYS 2024 Lab)</td>
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<td>POSC 3042 Animal Physiology II</td>
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<td>POSC 4213 Integrated Poultry Management Systems</td>
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General Elective
Discipline-Related Elective

Year Total:

Total Units in Sequence: 120

1. If CHEM 1103/CHEM 1101L taken previous fall.
2. If CHEM 1103/CHEM 1101L and CHEM 1123/CHEM 1121L taken previously.
3. If CHEM 3603/CHEM 3601L taken previously.

Minor in Poultry Science (POSC-M)

A student planning to minor in poultry science should consult a departmental adviser. The minor consists of 15 hours to include the following:

POSC 1002 Introduction to Careers in Poultry Science
POSC 1012 Avian Biology
POSC 2343 Poultry Production
POSC 2353 Poultry Breeder Management
Select 5 hours from any POSC course listing.

Total Hours 15

Requirements for Undergraduate Certificate of Excellence in Poultry Science

Students entering the Certificate of Excellence Program must 1) meet the admission requirements for the University of Arkansas and 2) have completed 90 hours of coursework with a 2.0 or higher from a regionally accredited institution of higher education.

Students who have completed a Bachelor of Science degree may also consider this program. Typical careers include production/processing/allied positions in the poultry industry, graduate studies are also an option.

Curriculum Outline:

POSC 3032 Animal Physiology I
POSC 3042 Animal Physiology II
POSC 3223 Poultry Diseases
POSC 3554 Avian Anatomy
POSC 4213 Integrated Poultry Management Systems
POSC 4314 Egg and Meat Technology
POSC 4343 Poultry Nutrition
POSC 4801 Seminar: Research Topics
or POSC 4821 Seminar: Problem Solving
POSC 4811 Seminar: Professionalism
or POSC 4831 Seminar: Processing Regulations
POSC 401V Internship in Poultry Science
POSC 410V Special Topics in Poultry Science

Faculty

Anthony, Nick, Ph.D. (Virginia Polytech Institute and State University), M.S., B.S. (The Ohio State University), Professor, 1990.
Bottje, Walter G., Ph.D. (University of Illinois-Urbana-Champaign), M.S. (Southern Illinois University), B.S. (Eastern Illinois University), Professor, 1985.
POSC 2343. Poultry Production. 3 Hours.
To develop a basic foundation about the practices utilized to produce broilers and turkeys. Course will highlight hatchery function and management; embryo development and hatching; chick/poultry transportation, preparation and maintenance of facilities for rearing birds, bird environment, nutrition, and health. Also to be covered are the different roles associated with live production in an integrated company. Corequisite: Lab component. (Typically offered: Fall)

POSC 3253. Poultry Breeder Management. 3 Hours.
Students will be introduced to the management practices used in production of young and adult chickens, turkeys, and other poultry with special emphasis on broiler, breeder, and market egg production. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Pre- or Corequisite: POSC 1012. (Typically offered: Spring)

POSC 3013. Exotic Companion Birds. 3 Hours.
Topics include basic care, health, breeding, bird evolution, anatomy, and nutritional management of commonly kept exotic companion birds, including parrots, cockatoos, macaws, finches, canaries, and pigeons. Discussion will include housing and care for individual pet birds and large scale breeding and production. Lecture/discussion 3 hours per week. Prerequisite: BIOL 1543. (Typically offered: Fall Odd Years)

POSC 3032. Animal Physiology I. 2 Hours.
Fundamental aspects of neural/muscle/bone tissues and the cardiovascular system. The normal structure and functions of these systems will be emphasized. Lecture 2 hours per week. Prerequisite: BIOL 1543 and CHEM 1123 or CHEM 1073. (Typically offered: Fall)

This course is cross-listed with ANSC 3032.

POSC 3042. Animal Physiology II. 2 Hours.
Fundamental aspects of renal, respiratory, digestive, and endocrine physiology will be covered. The normal structure and function of these systems will be emphasized. Lecture 2 hours per week. Prerequisite: BIOL 1543 and CHEM 1123 or CHEM 1073. (Typically offered: Spring)

This course is cross-listed with ANSC 3042.

POSC 3123. Principles of Genetics. 3 Hours.
Fundamentals of heredity, with special emphasis on the improvement of farm animals. Lecture 3 hours per week. Prerequisite: BIOL 1543 and MATH 1203 or higher. (Typically offered: Fall)

This course is cross-listed with ANSC 3123.

POSC 3223. Poultry Diseases. 3 Hours.
Common diseases affecting poultry reared under commercial conditions will be covered including diagnosis, therapy and prevention. Immunity, sanitation practices, and chemoprophylaxis will also be covered. Lecture 3 hours per week with some demonstrations, slides and videotapes. Prerequisite: BIOL 2013 and BIOL 2011L and junior standing. (Typically offered: Fall)

POSC 3381. Poultry Judging and Selection. 1 Hour.
Practice in production judging and flock selection. Laboratory 3 hours per week. (Typically offered: Fall and Spring) May be repeated for up to 4 hours of degree credit.

POSC 3513. Current Approaches in Agricultural Laboratory Research. 3 Hours.
A laboratory course to introduce students to current laboratory research techniques used in agricultural and life sciences. Hands-on laboratory exercises will emphasize current cellular and molecular research techniques, laboratory notebook keeping, data interpretation, and presentation of results. Prerequisite: BIOL 1543. (Typically offered: Spring Even Years)
POSC 3513H. Honors Current Approaches in Agricultural Laboratory Research. 3 Hours.
A laboratory course to introduce students to current laboratory research techniques used in agricultural and life sciences. Hands-on laboratory exercises will emphasize current cellular and molecular research techniques, laboratory notebook keeping, data interpretation, and presentation of results. Prerequisite: BIOL 1543. (Typically offered: Spring Even Years)
This course is equivalent to POSC 3513.

POSC 3554. Avian Anatomy. 4 Hours.
Detailed coverage of the external and internal anatomy of poultry, including formation and development of the egg and embryo. Lecture 3 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: BIOL 1543. (Typically offered: Spring)

POSC 400V. Special Problems. 1-9 Hour.
Special problems in the poultry sciences for advanced students. (Typically offered: Fall, Spring and Summer) May be repeated for up to 9 hours of degree credit.

POSC 401V. Internship in Poultry Science. 1-6 Hour.
Supervised work experience with private or government organizations to introduce students to professional areas of work in poultry science. Prerequisite: Junior standing. (Typically offered: Fall, Spring and Summer) May be repeated for up to 8 hours of degree credit.

POSC 4033. Statistical Process Control in the Food Industry. 3 Hours.
Analysis of processing data related to compliance with regulatory limits, quality & safety limits and internal & external customer specifications. Emphasizes statistical process control chart development, including understanding data and chart selection, calculating statistical limits, and interpreting process performance. Prerequisite: Instructor consent. (Typically offered: Irregular)

POSC 410V. Special Topics in Poultry Science. 1-4 Hour.
Topics not covered in other courses or for a more intensive study of specific topics in poultry science. (Typically offered: Irregular) May be repeated for degree credit.

POSC 4123. Legal Issues in Animal Agriculture. 3 Hours.
An issues-oriented course focusing on the legal issues involved in the production of poultry, swine and livestock. Emphasis will center on the laws, regulations and policy arguments involved in animal confinement, antibiotic use, humane slaughter and veterinary medicine, along with other related issues. The wide range of regulation from local to state to federal, depending on the issue will be studied and discussed. (Typically offered: Spring Odd Years)
This course is cross-listed with AGEC 4123, ANSC 4123.

POSC 4163. Companion Animal Nutrition. 3 Hours.
This course is designed to focus on the digestive anatomy, physiology, and nutrient metabolism of non-herbivorous companion animals, primarily dogs and cats. Topics discussed will also include an overview of the pet food industry, its regulations and commonly utilized ingredients. Students will gain a deeper understanding of nutrition as it relates to life stages and various disease states that can affect both dogs and cats. This course will require a Saturday trip to one or two off campus facilities. Prerequisite: ANSC 3143 or POSC 4343. (Typically offered: Spring)
This course is cross-listed with ANSC 4163.

POSC 4213. Integrated Poultry Management Systems. 3 Hours.
Major managerial systems in the integrated commercial poultry industry. Development of an understanding of the basic decision making processes of poultry companies and the factors influencing those decisions. Prerequisite: POSC 2353 and AGEC 1103 and AGEC 2303. (Typically offered: Spring)

POSC 4233. Value Added Muscle Foods. 3 Hours.
An intense study of muscle structure and how it relates to the development of further processed meat products. Muscle ultrastructure, protein functionality, product development, and quality analysis will be covered. In class hands on activities will also be included to allow students to obtain experience of producing processed meat products. Prerequisite: POSC 4314. (Typically offered: Spring Odd Years)

POSC 4314. Egg and Meat Technology. 4 Hours.
Study of the science and practice of processing poultry meat and egg products; examination of the physical, chemical, functional and microbiological characteristics of value added poultry products; factors affecting consumer acceptance and marketing of poultry products and the efficiency of production. Corequisite: Lab component. Prerequisite: (CHEM 1123 and CHEM 1121L) or (CHEM 1073 and CHEM 1071L) and BIOL 1543 and BIOL 1541L. (Typically offered: Fall)

POSC 4333. Poultry Breeding. 3 Hours.
Application of new developments in poultry breeding for efficient egg and meat production. Not intended for students interested in a career in veterinarian sciences. Lecture 3 hours per week. Prerequisite: MATH 1203 or higher and junior standing. (Typically offered: Fall Odd Years)

POSC 4343. Poultry Nutrition. 3 Hours.
Principles of nutrition as applied to the formulation of practical chicken and turkey rations. Lecture 3 hours per week. Prerequisite: CHEM 2613 or CHEM 3603 and junior standing. (Typically offered: Spring)

POSC 4801. Seminar: Research Topics. 1 Hour.
Required by all poultry science majors. Prerequisite: Junior or Senior standing and COMM 1313. (Typically offered: Spring Odd Years)

POSC 4811. Seminar: Professionalism. 1 Hour.
Addressing issues associated with preparation for finding and retaining your first job in the poultry industry. Lecture 1 hour per week. Prerequisite: Junior or Senior standing. (Typically offered: Fall Odd Years)

POSC 4821. Seminar: Problem Solving. 1 Hour.
Real world problem solving of poultry production systems. Lecture 1 hour per week. Prerequisite: Junior/ senior standing. (Typically offered: Spring Even Years)

POSC 4831. Seminar: Processing Regulations. 1 Hour.
Processing plant procedures and regulations with an emphasis on problem solving. Lecture 1 hour per week. Prerequisite: Junior or senior standing. (Typically offered: Fall Even Years)

POSC 4923. Brain and Behavior. 3 Hours.
Covers cellular through neural systems, major brain functions and comparative neuroanatomy. Topics include ion channels, membrane and action potentials, synaptic integration, neurotransmitters, major brain regions of mammals and birds, sensory and autonomic nervous systems, neuroendocrine system, and control by the brain of critical functions and behavior. Lecture 3 hours per week. Prerequisite: (ANSC 3032 or POSC 3032) or (ANSC 3042 or POSC 3042), or PSYC 2003, or BIOL 2213, or BIOL 2443, or BIOL 2533. (Typically offered: Fall)
This course is cross-listed with ANSC 4923.