Courses

**POSC 1003. Introduction to Poultry Science. 3 Hours.**
To introduce the student to the career opportunities in the poultry science industry. Students will be introduced to biological sciences associated with poultry. Corequisite: Lab component. (Typically offered: Fall)

**POSC 1062. Sustainable Integrated Small Animal Farming. 2 Hours.**
Practical information on small scale animal production, including practical strategies for farm planning, issues of economic and environmental sustainability, best management practices, biosecurity, disease prevention, and farm safety will be presented. (Typically offered: Spring)
This course is cross-listed with ANSC 1062.

**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 2353. 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. (Typically offered: Spring)

**POSC 2411L. Domestic Animal Microbiology Laboratory. 1 Hour.**
This course is designed for students working on their Poultry Science, Animal Science, and/or Food Science degrees. Students enrolled in this course will learn how to collect samples aseptically from live birds and meat samples, transport samples, and culture samples on a variety of different microbiological media. In addition, students will have the opportunity to visit one of the microbiology labs in the local poultry production facilities. Students will learn how to handle samples, stain bacterial cells, and identify unknown bacteria from field samples. A lab period will be assigned to teaching students on how to use bacteria in food production by teaching students how to prepare and sample yogurt. Corequisite: POSC 2413. (Typically offered: Fall)
This course is cross-listed with ANSC 2411L.

**POSC 2413. Domestic Animal Microbiology. 3 Hours.**
Basic concepts of domestic animal and poultry microbiology including diversity, genetics, metabolism, growth, control of growth, pathogenesis, and immunology. Prerequisite: (BIOL 1543 and BIOL 1541L) and (CHEM 1073 or CHEM 1103 or CHEM 1123). Corequisite: POSC 2411L. (Typically offered: Fall)
This course is cross-listed with ANSC 2413.

**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 3033. Animal Physiology. 3 Hours.**
Fundamental aspects of central nervous, musculoskeletal, reproductive, digestive, immune, cardiovascular, respiratory and renal systems will be covered. The normal structure and function of these systems will be emphasized. Lecture 3 hours per week. Prerequisite: BIOL 1543 and (CHEM 1123 or CHEM 1073). (Typically offered: Spring)
This course is equivalent to ANSC 3033.

**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) or (POSC 2413 and POSC 2411L)), and junior standing. (Typically offered: Spring)

**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)
This course is cross-listed with POSC 3513H, ANSC 3513H.

**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 cross-listed with ANSC 3513H.

**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: Fall)

**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 402V. Research Experience. 1-6 Hour.**
An undergraduate research experience should familiarize students with the research process and expand their knowledge in areas of poultry science through scientific literature searches and hands-on experiential learning. (Typically offered: Fall, Spring and Summer) May be repeated for up to 6 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 4433. (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 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 4613. Muscle Growth and Development. 3 Hours.
This is an undergraduate level course offering detailed insights into skeletal muscle morphological, physiological, cellular, and molecular factors affecting muscle structure and function, with special emphasis on cellular and molecular regulation of muscle growth and development, such as myo-, fibro-, and adipogenesis. And the relationship between the properties of skeletal muscle and meat quality. ANSC 3033 and(or) CHEM 3813 are recommended as a prerequisite(s). (Typically offered: Fall)
This course is cross-listed with ANSC 4613.

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 3033 or POSC 3033) or PSYC 2003, or BIOL 2213, or BIOL 2443, or BIOL 2533. (Typically offered: Fall)
This course is cross-listed with ANSC 4923.

POSC 500V. Special Problems. 1-6 Hour.
Work in special problems of poultry industry. Prerequisite: Graduate standing. (Typically offered: Fall, Spring and Summer)

POSC 5033. Statistical Process Control in the Food Industry. 3 Hours.
Analysis of processing data related to compliance with regulatory limits, quality and safety limits and internal and external customer specifications. Emphasizes statistical process control chart development, including understanding data and chart selection, developing statistical limits, and interpreting process performance. Graduate degree credit will not be given for both POSC 4033 and POSC 5033. Prerequisite: Instructor consent. (Typically offered: Irregular)

POSC 510V. Special Topics in Poultry Sciences. 1-4 Hour.
Topics not covered in other courses or a more intensive study of specific topics in poultry science. Prerequisite: Graduate standing. (Typically offered: Irregular) May be repeated for degree credit.

POSC 5113. Food Toxicology and Contaminants. 3 Hours.
During the course, the student will learn basic concepts of food toxicology, study the different physiological processes involved in food borne intoxications, and learn about potential health problems associated with exposure to these compounds. Prerequisite: Graduate study. (Typically offered: Irregular)

POSC 5123. Advanced Animal Genetics. 3 Hours.
Specialized study of animal genetics. Lecture 3 hours per week. Prerequisite: POSC 3123 or ANSC 3123. (Typically offered: Fall Even Years)
This course is cross-listed with ANSC 5123.

POSC 5143. Biochemical Nutrition. 3 Hours.
Interrelationship of nutrition and physiological chemistry; structure and metabolism of physiological significant carbohydrates, lipids, and proteins; integration of metabolism with provision of tissue fuels; specie differences in regulatory control of tissue and whole body metabolism of nutrients. Prerequisite: CHEM 3813. (Typically offered: Fall Even Years)
This course is cross-listed with ANSC 5143.

POSC 5152. Protein and Amino Acid Nutrition. 2 Hours.
Students will be introduced to the basic processes of protein digestion, amino acid absorption, transport, metabolism, and utilization along with how biochemical function of proteins and their dynamic state affect nutritional status for animals and man. Prerequisite: CHEM 3813. (Typically offered: Spring Even Years)
This course is cross-listed with ANSC 5152.

POSC 5163. 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 4433. (Typically offered: Spring)
This course is cross-listed with ANSC 5163.
POSC 5213. 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. Graduate degree credit will
not be given for both POSC 4213 and POSC 5213. Prerequisite: POSC 2353 and
AGEC 1103 and AGEC 2303. (Typically offered: Fall)

POSC 5233. 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. (Typically offered: Spring Even Years)

POSC 5243. 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.
Graduate degree credit will not be given for both POSC 4123 and POSC 5243.
(Typically offered: Spring Odd Years)

POSC 5254. 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. Graduate degree
credit will not be given for both POSC 4314 and POSC 5254. 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 5313. Domestic Animal Bacteriology. 3 Hours.
A study of bacteria pathogenic for domestic animals. Lecture 3 hours per week.
(Typically offered: Fall)

POSC 5343. Advanced Immunology. 3 Hours.
Aspects of innate, cell-mediated, and humoral immunity in mammalian and avian
species. Molecular mechanisms underlying the function of the immune system
are emphasized. A course in Basic Immunology prior to enrollment in Advanced
Immunology is recommended but not required. Lecture 3 hours per week. (Typically
offered: Spring)
This course is cross-listed with BIOL 5343.

POSC 5352L. Immunology in the Laboratory. 2 Hours.
Laboratory course on immune-diagnostic laboratory techniques and uses of
antibodies as a research tool. Included are cell isolation and characterization
procedures, immunochemistry, flow cytometry, ELISA and cell culture assay
systems. Laboratory 6 hours per week. Prerequisite: POSC 5343 or BIOL 5343 or
BIOL 4713. (Typically offered: Spring)
This course is cross-listed with BIOL 5352L.

POSC 5443. Poultry Nutrition. 3 Hours.
Principles of nutrition as applied to the formulation of practical chicken and turkey
rations. Lecture 3 hours per week. Graduate degree credit will not be given for both
POSC 4343 and POSC 5443. Prerequisite: CHEM 2613 or CHEM 3603. (Typically
offered: Spring)

POSC 5613. Muscle Growth and Development. 3 Hours.
This is a graduate level course offering detailed insights into skeletal muscle
morphological, physiological, cellular and molecular factors affecting muscle
structure and function, with special emphasis on cellular and molecular regulation
of muscle growth and development, such as myo-, fibro-, and adipo-genesis. And the
relationship between the properties of skeletal muscle and meat quality. Graduate
students will focus on the scientific reading, problem solving, and generating
research ideas. ANSC 3033, CHEM 3813 or ANSC 5143 or an equivalent course
are recommended as a prerequisite. (Typically offered: Fall)
This course is cross-listed with ANSC 5613.

POSC 5742. Advanced Poultry Diseases. 2 Hours.
An in-depth coverage of the most important diseases of poultry with a focus on
understanding mechanisms of pathogenesis, diagnostic techniques and principles
of prevention. Lecture/discussion 2 hours per week. Prerequisite: POSC 3223.
(Typically offered: Spring Odd Years)

POSC 5743L. Advanced Analytical Methods in Animal Sciences Laboratory. 3 Hours.
Introduction into theory and application of current advanced analytical techniques
used in animal research. Two 3-hour laboratory periods per week. (Typically offered:
Fall)
This course is cross-listed with ANSC 5743L.

POSC 5873. Molecular Analysis of Foodborne Pathogens. 3 Hours.
Course topics will include molecular detection and identification of foodborne
pathogens, the molecular response of foodborne pathogens to their environments,
functional genomic approaches, and analysis of complex microbial communities.
Lecture/discussion 3 hours per week. (Typically offered: Fall)

POSC 5901. Graduate Seminar. 1 Hour.
Critical review of the current scientific literature pertaining to the field of poultry
science. Oral reports. Recitation 1 hour per week. Prerequisite: Senior standing.
(Typically offered: Fall and Spring)

POSC 5923. 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 3033 or POSC 3033) or PSYC 2003 or BIOL 2213 or BIOL 2443 or
BIOL 2533. (Typically offered: Fall)
This course is cross-listed with ANSC 5923.

POSC 5932. Cardiovascular Physiology of Domestic Animals. 2 Hours.
Cardiovascular physiology, including mechanisms of heart function and excitation,
and blood vessel mechanisms associated with the circulatory system in domestic
animals and poultry. Lecture 3 hours; drill 1 hour per week (for second 8 weeks
Prerequisite: ANSC 3033 or POSC 3033. (Typically offered: Fall)
This course is cross-listed with ANSC 5932.

POSC 5952. Respiratory Physiology of Domestic Animals. 2 Hours.
Respiratory physiology, including mechanisms of lung function and gas exchange.
Mechanisms associated with the interaction of the respiratory system with other
bodily systems in domestic animals and poultry will be discussed. Lecture 3 hours;
drill 1 hour per week for first 8 weeks of semester. Pre- or Corequisite: CHEM 3813.
Corequisite: Drill component. Prerequisite: ANSC 3033 or POSC 3033. (Typically
offered: Spring)
This course is cross-listed with ANSC 5952.
POSC 5962. Gastrointestinal/Digestive Physiology of Domestic Animals. 2 Hours.
Gastrointestinal and hepatic physiology, including mechanisms of digestion, absorption of nutrients with emphasis on cellular control mechanisms in domestic animals and poultry. Lecture 3 hours; drill 1 hour per week (for second 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: ANSC 3033 or POSC 3033. (Typically offered: Fall)
This course is cross-listed with ANSC 5962.

POSC 5972. Renal Physiology of Domestic Animals. 2 Hours.
Renal physiology, including mechanisms of renal clearance with emphasis on cellular control mechanisms in domestic animals and poultry. Lecture 3 hours; drill 1 hour per week (for second 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: ANSC 3033 or POSC 3033. (Typically offered: Spring)

POSC 600V. Thesis. 1-6 Hour.
Thesis. Prerequisite: Graduate standing. (Typically offered: Fall, Spring and Summer) May be repeated for degree credit.

POSC 6343. Vitamin Nutrition and Metabolism. 3 Hours.
The vitamins required for humans and domestic animals for a healthy life with emphasis on absorption, transport, metabolism, biopotency, mechanism of action, tissue retention and turnover. Lecture 3 hours per week. Prerequisite: CHEM 3813. (Typically offered: Fall Odd Years)
This course is cross-listed with ANSC 6343, FDSC 6343.

POSC 700V. Doctoral Dissertation. 1-18 Hour.
Doctoral Dissertation. Prerequisite: Graduate standing. (Typically offered: Fall, Spring and Summer) May be repeated for degree credit.