

POSC - POULTRY SCIENCE

POSC 609 Avian Physiology

Credits 3. 3 Lecture Hours. Basic physiological principles pertaining specifically to avian species; cardiovascular, neural, respiratory, digestive, endocrine and reproductive systems; physiological experiments use various avian species as laboratory animals. **Prerequisite:** Approval of instructor.

POSC 611 Advanced Egg & Poultry Meat Processing

Credits 3. 3 Lecture Hours. Advanced Egg & Poultry Meat Processing. Focuses on egg markets, egg processing, grading, packaging, safety, quality and consumer acceptance of shell eggs; poultry meat processing (specifically turkeys and broilers), meat quality, markets, consumer acceptance of poultry meat and safety. **Prerequisite:** Graduate classification.

POSC 614 Fermentation and Gastrointestinal Microbiology

Credits 3. 3 Lecture Hours. Fermentation and gastrointestinal ecosystems in terms of microorganisms present, their activities and requirements and their interactions in a dynamic system. **Prerequisite:** Beginning microbiology and/or biochemistry or approval of instructor. **Cross Listing:** NUTR 614 and VTMI 614.

POSC 615 Avian Nutrition

Credits 3. 3 Lecture Hours. Metabolism and nutritional requirements of domestic fowl including proteins, carbohydrates, fats, minerals, vitamins and related feed additives. **Prerequisites:** POSC 411 and CHEM 228 or approval of instructor.

POSC 619 Molecular Methods for Microbial Characterization

Credits 3. 2 Lecture Hours. 2 Lab Hours. Underlying principles of molecular methods for microbial detection and characterization in natural and man-made ecosystems; emphasis on method application and data interpretation; emphasis on microbial pathogens and indicator organisms in foods and environment; laboratory covers select protocols. **Prerequisites:** FSTC 326/ANSC 326; SCSC 405; POSC 429; approval of instructor. **Cross Listing:** SCSC 619, FSTC 619 and VTMI 619.

POSC 625/ANSC 623 Precision Diet Formula

Credits 3. 2 Lecture Hours. 2 Lab Hours. Theoretical and applied principles associated with precision feeding and diet formulation to optimize nutrient requirements; optimization using least-cost formulation, ingredient inventory, farm and feed mill management, and nutrient management of non-ruminants (poultry, swine, horse, and fish) and ruminant animals (beef and dairy). **Prerequisite:** POSC 411 or ANSC 318. **Cross Listing:** ANSC 623/POSC 625.

POSC 628 Advanced Poultry Meat Further Processing

Credits 3. 3 Lecture Hours. The science and practice of value added products; physical, chemical, microbiological and functional characteristics of value-added poultry products as they affect consumer acceptance, efficiency of production and regulatory approval. **Prerequisite:** Graduate classification.

POSC 629/FSTC 629 Microbiology of Food Irradiation

Credits 3. 2 Lecture Hours. 2 Lab Hours. Lecture plus laboratory overview of electron beam and x-ray based food irradiation principles; provides a working knowledge of using electronic pasteurization as a means of destroying microbial pathogens or retarding microbial spoilage in foods. **Cross Listing:** FSTC 629/POSC 629.

POSC 630 Applied Animal Genomics

Credits 3. 3 Lecture Hours. Theory and application of genomics by livestock industries; consideration of genetic markers, gene mapping methods, genome analysis and emerging technologies such as microarrays, transgenesis, cloning and marker assisted selection; exposure to bioinformatic tools for genomics. **Prerequisite:** GENE 603 or approval of instructor. **Cross Listing:** ANSC 629 and GENE 629.

POSC 634 Diseases of Poultry

Credits 3. 3 Lecture Hours. Introduction to Poultry Biosecurity and Diseases. Basic understanding of infectious diseases of poultry; control and prevention of infectious diseases. **Prerequisites:** BIOL 113/ BIOL 123.

POSC 635 Applied Artificial Intelligence in Livestock Systems

Credits 3. 3 Lecture Hours. Introduction to artificial intelligence (AI) technologies applied in livestock systems; application of fundamental concepts and techniques of AI in livestock systems using Python programming language; preparation of step-by-step instructions for developing AI models to extract livestock biometric information from imagery data. **Prerequisites:** Graduate classification.

POSC 637 Application of Gene Expression Methods in Avian Science

Credits 3. 2 Lecture Hours. 2 Lab Hours. An intensive overview of topics that are related to avian genetics, physiology, pathology and biochemistry with hands-on experiences in molecular approaches to understand avian biology; emphasizes the application of recent biochemical methods in basic and applied avian biology that are important for the poultry industry. **Prerequisites:** Graduate classification in poultry science or approval of instructor.

POSC 645/NUTR 645 Nutrition and Metabolism of Vitamins

Credits 3. 3 Lecture Hours. Chemistry and metabolism of the fat soluble and water soluble vitamins and their roles in animals; integrates cellular biochemistry and metabolism of the vitamins in vertebrate animals. **Prerequisites:** POSC 411 or ANSC 303/NUTR 303; BICH 410 or BICH 603. **Cross Listing:** NUTR 645/POSC 645.

POSC 649/VTMI 649 Immunology

Credits 3. 3 Lecture Hours. Cellular basis of the immune response; relationships between inflammation and acquired immunity, MHC and cell activation; the role of cytokines in immunoregulation and hypersensitivity, vaccines, and the mechanism of immunity to viruses, bacteria and parasites. **Prerequisite:** VTPB 409 or equivalent. **Cross Listing:** VTMI 649/POSC 649.

POSC 650/NUTR 650 Nutrition and Metabolism of Minerals

Credits 3. 3 Lecture Hours. Nutritional significance of minerals in animal metabolism; chemical, biochemical and physiological role of minerals and homeostatic control in animal metabolism. **Prerequisites:** POSC 411 or ANSC 303/NUTR 303; BICH 410 or BICH 603. **Cross Listing:** NUTR 650/POSC 650.

POSC 654 Animal Welfare

Credits 3. 3 Lecture Hours. Exploration of animal welfare issues from an animal's perspective; exploration of the general questions that typically affect the welfare of an animal and insight to practices that can be used to improve the welfare of an animal. **Prerequisites:** Graduate classification.

POSC 660/VTMI 650 Experimental Immunology

Credits 4. 3 Lecture Hours. 3 Lab Hours. Familiarization, development and integration of techniques into experimental design of immunologic investigation; antibody production, protein purification, immunofluorescence, agar-gel diffusion, immunoelectrophoresis and specialized serologic tests. **Prerequisites:** BICH 410 or equivalent; 8 hours of microbiology. **Cross Listing:** VTMI 650/POSC 660.

POSC 681 Seminar

Credits 0-1. 0-1 Other Hours. Intensive review of literature on feeding, breeding, incubation, marketing, and management; development of familiarity with journals, organizations, agencies and personnel working on poultry problems. May be repeated as many semesters as desired. **Prerequisite:** Graduate classification.

POSC 684 Professional Internship

Credits 0 to 4. 0 to 4 Other Hours. A supervised internship in the poultry industry to provide practical experience in a real world setting that is consistent with the student's professional interests. **Prerequisite:** Graduate classification.

POSC 685 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours. Individual problems involving application of theory and practice in the various disciplines of poultry science. **Prerequisite:** Approval of department head.

POSC 689 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours. Selected topics in an identified area of poultry science. May be repeated for credit. **Prerequisite:** Approval of instructor.

POSC 691 Research

Credits 1 to 23. 1 to 23 Other Hours. Research methods and techniques in breeding, nutrition, physiology, marketing, management and products technology. Students must conduct experiments in one of these fields. Design of experiments, collection, analysis and presentation of experimental data. Designed for thesis or dissertation credit.