AUD 3950 Creative Inquiry III 1-4 (1-4) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. Creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits. Prereg.: Consent of instructor.

AUD 4800* Audio Engineering II 3 (2) Advanced course in music technology focused on music production integrating digital audio and virtual instruments. Prereg.: AUS 2850; and AUS 3800; and PHYS 2080 or PHYS 2210; each with a C or better. Coreq.: AUS 4801.

AUD 4801* Audio Engineering II Laboratory 0 (2) Non-credit laboratory to accompany AUD 4800. Coreq.: AUD 4800.

AUD 4850 Production Workshop 3 (2) Project-based course focused on music production. Students produce an audio CD that includes recorded audio tracks and/or newly-created sequenced material with creative and appropriate packaging. Prereg.: AUS 4800 with a C or better. Coreq.: AUS 4851.

AUD 4851 Production Workshop Laboratory 0 (2) Non-credit laboratory to accompany AUD 4850. Coreq.: AUD 4850.

AUD 4950 Creative Inquiry IV 1-4 (1-4) In consultation with and under the direction of a faculty member, students pursue scholarly activities individually or in teams. Creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for a maximum of eight credits. Prereg.: Consent of instructor.

AUD 4990* Independent Study in Audio Technology 1-3 (1-3) Tutorial work for students with special interests in audio technology outside the scope of existing courses. May be repeated for a maximum of six credits. Prereg.: Consent of department chair.

ANIMAL AND VETERINARY SCIENCES


AVS 1000 Orientation to Animal and Veterinary Sciences 1 (2) Study of the role of animal agriculture in the world today emphasizing supply and demand of end products and careers available in the animal industry.

AVS 1500 Introduction to Animal Science 3 (3) Survey of animal industries and their role in society. Examines the relationship between man and animals in both a current and historical context. Coreq.: AVS 1510.

AVS 1510 Introduction to Animal Science Laboratory 1 (2) Examines the basic principles in the handling of livestock and techniques of farm animal production as well as orientation to animal production units. Coreq.: AVS 1500.

AVS 2000 Beef Cattle Techniques 2 (1) Examines basic principles in the techniques and management associated with production of both beef cattle and sheep. Students may take only one techniques course per semester. Prereg. or concurrent enrollment: AVS 1500 and AVS 1510. Coreq.: AVS 2001.


AVS 2010 Poultry Techniques 2 (1) Basic principles of the production of poultry are discussed and demonstrated. Students receive hands-on experience in the production and processing of poultry. Students may take only one techniques course per semester. Prereg.: AVS 1510. Coreq.: AVS 2011.

AVS 2011 Poultry Techniques Laboratory 0 (2) Non-credit laboratory to accompany AVS 2010. Coreq.: AVS 2010.

AVS 2020 CAFLS Plus 3(2) A professional development course intended for Collage of Agriculture, Forestry and Life Sciences sophomores and juniors who plan to complete an internship, co-op or other external learning experience. Emphasis is placed on understanding personality assessments, leadership styles, negotiation techniques, team dynamics and etiquette. The course is a seminar style course with accompanying laboratory exercises. Coreq.: AVS 2021.

AVS 2021 CAFLS Plus Laboratory 0 (2) Non-credit laboratory to accompany AVS 2020. Students put into practice concepts introduced and discussed in CAFLS Plus lectures. Coreq.: AVS 2020. AVS 2030 Dairy Science Techniques 2 (1) Introduction to dairy production and processing. Laboratories include hands-on opportunities for management of dairy cattle, quality control of milk, and processing of milk and dairy products. Students may take only one techniques course per semester. Prereg.: AVS 1510. Coreq.: AVS 2031.

AVS 2031 Dairy Science Techniques Laboratory 0 (2) Non-credit laboratory to accompany AVS 2030. Coreq.: AVS 2030.

AVS 2040 Horse Care Techniques 2 (1) Basic principles of equine behavior, handling, and management are discussed and demonstrated. Students receive hands-on experience with various management techniques, including handling and all aspects of health care. Students may take only one techniques course per semester. Prereg.: AVS 1510. Coreq.: AVS 2041.

AVS 2041 Horse Care Techniques Laboratory 0 (2) Non-credit laboratory to accompany AVS 2040. Coreq.: AVS 2040.

AVS 2050 Horsemanship Techniques 2 (4) Develops basic to advanced skills based on rider aptitude. Students learn the mechanics of safety, lungeing, basic position, cues, and rider’s aids, as well as individual work and building subtlety and finesse with aids. Prereg.: AVS 1510.

AVS 2060 Swine Techniques 2 (1) Examines the basic principles in the techniques and management associated with production of swine. Students may take only one techniques course per semester. Prereg.: AVS 1500 and AVS 1510. Coreq.: AVS 2061.

AVS 2061 Swine Techniques Laboratory 0 (2) Non-credit laboratory to accompany AVS 2060. Coreq.: AVS 2060.

AVS 2080 Techniques of Teaching Horsemanship 3 (2) Discusses teaching techniques and theory and handling of large mounted groups. Trains beginner through advanced levels. Prereg.: AVS 2050. Coreq.: AVS 2081.

AVS 2081 Techniques of Teaching Horsemanship Laboratory 0 (2) Non-credit laboratory to accompany AVS 2080. Coreq.: AVS 2080.

AVS 2090 Livestock Exhibition Techniques 2 (1) Students learn techniques associated with exhibition and evaluation of beef, dairy, equine, poultry, and swine. Prereg.: AVS 1510. Coreq.: AVS 2091.

AVS 2091 Livestock Exhibition Techniques Laboratory 0 (2) Non-credit laboratory to accompany AVS 2090. Coreq.: AVS 2090.

AVS 2110 Meat Processing Techniques 2 (1) Examines the basic principles of food animal processing. Laboratories include hands-on opportunities harvesting a variety of livestock, carcass evaluation, carcass fabrication and value-added meat products. Students also gain understanding in Hazard Analysis and Critical Control (HACCP) certification and meat inspection. Prereg.: AVS 1500. Coreq.: AVS 2111.

AVS 2111 Meat Processing Techniques Laboratory 0 (2) Non-credit laboratory to accompany AVS 2110. Coreq.: AVS 2110.

AVS 2120 Small Ruminant Techniques 2 (1) Basic principles of the production of small ruminant animals are discussed and demonstrated. Students receive hands on experience in the management, production and processing of sheep and goats. Activities include handling, health care, lambing or kidding, and fiber, milk and meat production. Students may only take one techniques course per semester. Prereg.: AVS 1510. Coreq.: AVS 2121.

AVS 2121 Small Ruminant Techniques Laboratory 0 (2) Non-credit laboratory to accompany AVS 2120. Coreq.: AVS 2120.

AVS 3010 Anatomy and Physiology of Domestic Animals 4 (3) Study of physiology and associated anatomy of the body systems, including nervous, skeletal, muscular, respiratory, digestive, circulatory, urinary, reproductive, and endocrine systems. Designed primarily for students in Animal and Veterinary Sciences. Prereg.: BIOL 1040 and BIOL 1060; or BIOL 1110. Coreq.: AVS 3011.

AVS 3011 Anatomy and Physiology of Domestic Animals Laboratory 0 (3) Non-credit laboratory to accompany AVS 3010. Coreq.: AVS 3010.

AVS 3020 Livestock Selection and Evaluation 1 2(1) Selection and evaluation of the meat species of livestock with application of theory applied in multiple field exercises. Coreq.: AVS 3021.

AVS 3021 Livestock Selection and Evaluation Laboratory 0 (2) Non-credit laboratory to accompany AVS 3020. Coreq.: AVS 3020.

AVS 3090 Principles of Equine Evaluation 2 (4) Discusses the selection and evaluation of equines for various disciplines. Emphasizes current industry standards with regard to form to function. Students place classes of four horses and develop oral reasons to defend their placing. Opportunities for competitive horse judging teams are available.
AVS 3100 Animal Health 3 (3) Discusses basic principles of animal health. Emphasizes disease prevention in beef cattle, dairy cattle, goats, horses, poultry, and swine. The most common and important diseases and zoonosis of farm animals are explained. Preq: AVS 1500.

AVS 3110 Dairy Cattle Selection 2 (1) Dairy selection and evaluation methods are studied, including evaluation according to the Purebred Dairy Cattle Association scorecard, linear evaluation, pedigrees, and Dairy Herd Improvement Association records. Emphasizes presentation of oral reasons. Coreq: AVS 3111.

AVS 3111 Dairy Cattle Selection Laboratory 0 (2) Non-credit laboratory to accompany AVS 3110. Coreq: AVS 3110.

AVS 3150 Animal Welfare 3 (3) Discussion of past, present, and future human/animal interaction. Topics include wild animals, domestication, animal welfare organizations, animal rights organizations, welfare assessment, animal agriculture, animal research, and other current topics. Preq: Junior standing.

AVS 3230 Poultry and Poultry Products Evaluation 2 (4) Selection of layers, broilers, and turkeys. Grading of poultry products according to USDA grade standards is also studied. Students are eligible to compete in intercollegiate poultry judging contests. May be repeated for a maximum of four credits.

AVS 3400 Animal and Veterinary Sciences Professional Development 1 (1) Career development in the animal and veterinary sciences field by resume and interview preparation, learning about career opportunities, and interaction with industry professionals.


AVS 4011 Beef Production Laboratory 0 (2) Non-credit laboratory to accompany AVS 4010. Coreq: AVS 4010.

AVS 4050 Advanced Selection and Evaluation 2 (4) Special and advanced training in selection and evaluation of breeding, performance, and market animals or their products. Species used are beef and dairy cattle, sheep, swine, and horses. Preq: AVS 3020 or AVS 3090 or AVS 3110 or FDSC 3040; and consent of instructor.

AVS 4060 Seminars and Related Topics 2 (3) Students conduct in-depth library research on current topics related to animal science and give formal presentations using multimedia technology. Students also prepare scientific posters, learn interviewing skills, prepare résumés, and observe professional speakers. Preq: Senior standing.

AVS 4090 Selected Topics 1-3 (1-3) Topics of interest to students at the undergraduate, graduate, and professional levels. Provides experience with problems not covered in other courses or on thesis research. May be repeated for a maximum of six credits, but only if different topics are covered.

AVS 4100 Domestic Animal Behavior 3 (3) Provides knowledge and understanding of behavior related to perception, learning, sociality, reproduction, feeding, and health for application in production, training, and design of environments for optimum health and welfare of domestic animals. Preq: AVS 1500 and AVS 1510; and Junior standing.

AVS 4140 Basic Immunology 3 (3) Introduction to the immune system of vertebrate animals, with an emphasis on structure, function, regulation, and cellular and molecular mechanisms of immune responses. May also be offered as BIOL 4140 or MIRC 4140. Preq: BIOL 4610 and MICRO 3050.

AVS 4150 Contemporary Issues in Animal Science 3 (3) Provides knowledge, understanding, and critical analytical skills on current issues in animal agriculture in diverse regional, national, and global social-cultural and political environments as they impact animals and man. Preq: Junior standing.

AVS 4160 Equine Exercise Physiology 4 (3) Integration of muscle, bone, cartilage, cardiovascular, and respiratory systems as related to the equine athlete. Encompasses biomechanics, kinetics, and kinesiology related concepts specific to the horse. Further discussion of diseases related to specific systems is covered. Preq: AVS 3010. Coreq: AVS 4161.

AVS 4161 Equine Exercise Physiology Laboratory 0 (2) Non-credit laboratory to accompany AVS 4160. Coreq: AVS 4160.

AVS 4170 Animal Agribusiness Development 2 (1) Team-based development of a business relating to the animal industries. Students develop the business from the initial idea through operations. Focuses on the development of the business plan, including financials, personnel management, and resources needed. Preq: ACCT 2010; and ECON 2110 or ECON 2120. Coreq: AVS 4171.

AVS 4171 Animal Agribusiness Development Laboratory 0 (2) Non-credit laboratory to accompany AVS 4170. Coreq: AVS 4170.

AVS 4170* Poultry Science On-line 3 (3) Online course covering the physiology, nutrition, health, reproduction, genetics, breeding, housing, and management of commercial poultry species, including the processing of meat and egg products.

AVS 4220 Special Problems 1-3 (1-3) Laboratory, library, or field study of problems related to animal and veterinary sciences, emphasizing development and testing of hypothesis and reporting of results. May be repeated for a maximum of four credits. Preq: Junior standing and consent of instructor supervising study.
AVS (BIOL, MICR) 4240 Immunology Laboratory 1 (3) This course is designed to apply the knowledge gained in MICR 4140, Immunology lecture, in an applied setting. The experiments in this beginning immunology laboratory are designed to study both the innate and acquired immune systems. Experimentation into the formation, function and detection of antibodies provides students with skills in basic immunologic techniques. May also be offered as BIOL 4240 or MICR 4240. Prq or concurrent enrollment: MICR 4140.

AVS 4410 Animal and Veterinary Sciences Teaching Experience I-3 (1-3) Formal teaching experience related to animal and veterinary sciences supervised by a faculty member. May involve classroom instruction, educational material development, and/or student evaluation and assessment. Students submit periodic written reports and a final written and oral report. May be repeated for a maximum of four credits. To be taken Pass/No Pass only. Prq: Consent of instructor.

AVS 4420 Animal and Veterinary Sciences Extension Experience I-3 (1-3) Formal experience in extension education. Students are involved in development, implementation, or assessment of adult or youth educational programs related to animal and veterinary sciences, under supervision of extension professionals. Students submit periodic written reports and a final written and oral report. May be repeated for a maximum of four credits. To be taken Pass/No Pass only. Prq: Consent of instructor.

AVS 4430* AVS International Experience I-3 (1-3) Preplanned and approved international education/cultural experience supervised by an Animal and Veterinary Sciences faculty member. Periodic reports or record keeping are required. Final report and oral presentation are required at the end of the experience. May be repeated for a maximum of four credits. To be taken Pass/No Pass only. Prq: Consent of instructor.

AVS 4440 AVS Animal Agribusiness Travel Experience 2 (1) Classroom and travel course to expose students to animal production operations, agribusiness, and industry leaders across various geographical areas. Travel is conducted during spring break and includes visits to farms, universities, and agribusinesses. Additional fee is required. To be taken Pass/Fail only. Prq: Junior standing in Animal and Veterinary Sciences and consent of instructor. Coreq: AVS 4441.

AVS 4441 AVS Animal Agribusiness Travel Experience Laboratory 0 (2) Non-credit laboratory to accompany AVS 4440. Coreq: AVS 4440.


AVS 4501 Sustainable Livestock Production Systems Laboratory 0 (2) Non-credit laboratory to accompany AVS 4500. Coreq: AVS 4500.

AVS 4530* Animal Reproduction 3 (2) Reproductive physiology and endocrinology of mammals with emphasis on farm animals and frequent reference to reproduction in laboratory animals and humans. Includes Honors sections. Prq: AVS 1500 and AVS 3010. Coreq: AVS 4531.

AVS 4531* Animal Reproduction Laboratory 0 (2) Non-credit laboratory to accompany AVS 4530. Coreq: AVS 4530.

AVS 4550* Animal Reproductive Management 2 (1) Physiology and endocrinology of pregnant nonpregnant cows are discussed. Emphasizes methods of artificial insemination, pregnancy detection, and computer record keeping to achieve a high level of reproductive efficiency in cattle. Prq: AVS 1500 and AVS 3010. Prq or concurrent enrollment: AVS 4530. Coreq: AVS 4551.

AVS 4551* Animal Reproductive Management Laboratory 0 (3) Non-credit laboratory to accompany AVS 4550. Coreq: AVS 4550.

AVS 4650* Animal Physiology I 3 (3) Advanced study of the physiological systems of domestic animals as these systems relate to the integrated functions of the body. Exposes students to advanced physiological concepts and current literature perspectives on a variety of body systems and processes. Students are expected to have completed introductory coursework in physiology and biochemistry.

AVS 4670* Animal Physiology II 3 (3) Advanced course extending coverage of major and current topics in animal physiology across species not previously covered in AVS 4650. Major topics include digestive physiology in nonruminant and ruminant species, reproductive physiology, muscle physiology, and general aspects of avian physiology. Students are expected to have completed introductory coursework in physiology and biochemistry.

AVS 4700* Animal Genetics 3 (3) Fundamental principles relating to the breeding and improvement of livestock, including variation, heredity, selection, linebreeding, inbreeding, crossbreeding, and other related subjects. Includes Honors sections.

AVS (BIOI, MICR) 4800* Vertebrate Endocrinology 3 (3) Introduction to the basic principles of neuroendocrine integration and homeostatic maintenance in vertebrates. Comparative morphology and physiology of various endocrine tissues and hormone chemistry and modes of action are considered. May also be offered as BIOI 4800. Prq: BIOL 3030. Students who have not completed BIOL 3030, but who have completed coursework in organic chemistry, may request an override from the instructor.

AVS 4910 Animal and Veterinary Sciences Undergraduate Research Experience I-3 (1-3) Formal laboratory, library, or field study of problems related to animal and veterinary sciences, emphasizing hypothesis development, testing, and reporting results. Projects are preplanned, reviewed, and approved. Students submit periodic written reports and final written and oral reports. May be repeated for a maximum of four credits. Prq: Consent of instructor.

BCHM 1030 Careers in Biochemistry and Genetics 1 (1) Introduces students to biochemistry and genetics career paths, professional organizations, ethical issues, and requirements for advanced study. Also gives students training in design of a professional portfolio. Credit toward a degree will be given for only one of BCHM 1030, GEN 1030. Prq: Biochemistry or Genetics major.

BCHM 3010 Molecular Biochemistry 3 (3) Introduces the nature, production, and replication of biological structure at the molecular level and its relation to function. Includes Honors sections. Prq: BIOL 1100 with a C or better. Prq or concurrent enrollment: CH 2230 with C or better.

BCHM (GEN) 3040 Molecular Biology Laboratory 2 (4) Introduces fundamental molecular biology laboratory techniques commonly used in biochemistry, genetics, and molecular biology research. Principles and applications of these techniques are also discussed. May also be offered as GEN 3040. Prq: BIOL 1100. Prq or concurrent enrollment: BCHM 3010 or GEN 3020.

BCHM 3050 Essential Elements of Biochemistry 3 (3) Introduction to structure, synthesis, metabolism and function of biomolecules in living organisms. Prq: BIOI 1030 or BIOL 1030 or BIOL 1100. Prq or concurrent enrollment: CH 2230 or CH 2230.

BCHM 4060* Physiological Chemistry 3 (3) Studies chemical basis of the mammalian physiological processes of muscle contraction, nerve function, respiration, kidney function, and blood homeostasis. Discusses composition of specialized tissue such as muscle, nerve, blood, and bone and regulation of water, electrolytes, and acid-base balance. Prq: BCHM 3050 or CH 2230 or CH 2230.

BCHM 4230* Principles of Biochemistry 3 (3) Study of the chemistry of amino acids, monosaccharides, fatty acids, purines, pyrimidines, and associated compounds leads to an understanding of their properties and the relationship between structure and function that makes them important in biological processes. The use of modern techniques is stressed. Prq: CH 2240.

BCHM 4310* Physical Approach to Biochemistry 3 (3) Study of chemical and physical properties of amino acids, lipids, nucleic acids, sugars, and their biopolymers. Physical and mathematical analyses are correlated with biological structure and function. Includes Honors sections. Prq: BCHM 3010 with a C or better. Prq or concurrent enrollment: CH 3300 or CH 3310.

BCHM 4320* Biochemistry of Metabolism 3 (3) Study of the central pathway of carbohydrate, lipid, and nucleotide metabolism. Emphasizes bioenergetics, limiting reactions, and the regulation and integration of the metabolic pathways. Includes Honors sections. Prq: BCHM 3010 and BCHM 4310, each with a C or better.