AUD 2790 Audio Practicum 3(1) Practical work in audio providing technical services to the broader university and surrounding community. Projects include recording live performances, sound support for public events, and audio support for film and animation projects. May be repeated for a maximum of six credits. Preq: AUD 3800 with a C or better. Coreq: AUD 2791.

AUD 2791 Audio Practicum Laboratory 0(5) Non-credit laboratory to accompany AUD 2790. Coreq: AUD 2790.

AUD 2800 Sound Reinforcement 3(2) Theory and practice of using audio equipment for amplifying sound in venues ranging from conference rooms to concert halls and sports arenas. Preq: Production Studies in Performing Arts major. Coreq: AUD 2801.

AUD 2801 Sound Reinforcement Laboratory 0(2) Non-credit laboratory to accompany AUD 2800. Coreq: AUD 2800.

AUD 2850 Acoustics of Music 3(3) Study of the relationship between the laws of physics and the production of music from an audio engineering perspective. Topics include mechanical and acoustical laws, harmonic analysis, musical scales, sound production in instruments, and the physiology of hearing. Preq: Production Studies in Performing Arts major.

AUD 2950 Creative Inquiry II 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. Preq: Consent of instructor.

AUD 3800 Audio Engineering I 3(2) Intermediate-level course in music technology focusing on digital hard-disk recording and acoustical considerations in audio engineering. Preq: PHYS 1220 with a C or better or PHYS 2070 with a C or better; and MUSC 1800 with a C or better or AUD 3850 with a C or better. Coreq: 3801.

AUD 3801 Audio Engineering I Laboratory 0(2) Non-credit laboratory to accompany AUD 3800. Coreq: AUD 3800.

AUD 3850 Advanced Live Sound Reinforcement 3(2) Advanced course in live sound reinforcement focused on digital consoles and sound system design. Preq: AUD 2800 with a C or better. Coreq: AUD 3851.

AUD 3851 Advanced Live Sound Reinforcement Laboratory 0(2) Non-credit laboratory to accompany AUD 3850. Coreq: AUD 3850.

AUD 3860 Electronic Composition and Sound Design 3(2) Intermediate to advanced level course covering techniques, methods and issues associated with electronic music composition and production. Topics include advanced MIDI/sequencing techniques, electronic orchestral arrangements, scoring sound design, and picture and audio processing. Preq: AUD 1850 or MUSC 1800. Coreq: AUD 3861.

AUD 3861 Electronic Composition and Sound Design Laboratory 0(2) Non-credit laboratory to accompany AUD 3860. Coreq: AUD 3860.

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. Preq: 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. Preq: AUD 2850; and AUD 3800; and PHYS 2080 or PHYS 2210; each with a C or better. Coreq: AUD 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. Preq: AUD 4800 with a C or better. Coreq: AUD 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. Preq: Consent of instructor.

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

ANIMAL AND VETERINARY SCIENCES


AVS 1000 Orientation to Animal and Veterinary Sciences 2(1) Introduction to 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) Examine 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 the basic principles in the techniques and management associated with production of both beef cattle and sheep. Students must take only one techniques course per semester. Preq 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. Preq: 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 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. Preq: 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. Preq: 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) Delves basic to advanced skills based on rider aptitude. Students learn the mechanics of safety, lunging, basic position, cues, and rider’s aids, as well as individual work and building subtlety and finesse with aids. Preq: 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. Preq: 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. Preq: 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 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 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. Preq: AVS 1500. Coreq: AVS 2111.

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

AVS 2220 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 technique course per semester. Preq: AVS 1510. Coreq: AVS 2121.

AVS 2211 Small Ruminant Techniques Laboratory 0(2) Non-credit laboratory to accompany AVS 2210. 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. Preq: 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 I 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 I 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 U.S. 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 3600 Internship 1-12(1-12) Off-campus, pre-planned, reviewed, approved, and supervised educational experience in an area related to animal and veterinary sciences. Based on a multifaceted work experience in a highly structured professional environment. Students submit periodic written reports and a final written and oral report. To be taken Pass/No Pass only. Preq: Consent of instructor.

AVS 3700 Principles of Animal Nutrition 3(3) Familiarizes students with nutrients and feeds used in livestock and specialty animal production. Methods of evaluating common feed-stuffs are covered along with a survey of the functioning of the various digestive systems. Practical aspect to feeding each species is covered. Includes Honors sections. Preq: AVS 1500 and CH 1020.


AVS 3751 Applied Animal Nutrition Laboratory 0(2) Non-credit laboratory to accompany AVS 3750. Coreq: AVS 3750.

AVS 3850 Equine Behavior and Training 2 (6) Introduces students to the initial processes in gentling and riding young horses. Students work with two- and three-year-old horses to desensitize them to stimuli in preparation for riding. Students do groundwork and put the initial rides on the horses. Preq: AVS 2050.

AVS 3860 Advanced Equine Behavior and Training 2 (6) Students train young horses advanced skills in western or English disciplines. Students actively prepare horses for show or sale and participate in a show or marketing/sale of their assigned horse. Develops students' negotiation and communication skills, industry insights, and industry-specific jargon. May be repeated for a maximum of four credits. Preq: AVS 3850.

AVS 3900 Practicum 1-3(1-3) On-campus, pre-planned, supervised learning experience in an area related to animal and veterinary sciences. 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. To be taken Pass/No Pass only. Preq: Consent of instructor supervising practicum.

AVS 4000 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* Poultry 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(2) Students conduct in-depth library research on current topics related to animal science and give formal presentations using multimedia technology. 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 4110* Animal Growth and Development 3(3) Integration of the nutritional, physiological, and genetic basis for animal growth and development with application to livestock and poultry production. Includes the cellular and molecular mechanisms controlling these processes and emphasizes the genes that regulate animal products (meat, eggs, wool, and milk). Preq: AVS 3110.
AVS 4120* Advanced Equine Management 4(3)
Further discussion of special considerations of the equine regarding housing, manure management, nutrition, reproduction, transportation, and behavior. Students gain insight into how horses differ from other livestock species and their unique requirements for the above systems. Includes Honors sections. Preq: AVS 3700. Coreq: AVS 4121.

AVS 4121* Advanced Equine Management Laboratory 0(2) Non-credit laboratory to accompany AVS 4120. Coreq: AVS 4120.

AVS 4130* Animal Products 3(2) Introduction to the safe and humane production of red meat, poultry, and dairy products. Includes HACCP principles and production of value-added animal products. Coreq: AVS 4131.

AVS 4131* Animal Products Laboratory 0(2) Non-credit laboratory to accompany AVS 4130. Coreq: AVS 4130.

AVS (BIOL, MICR) 4140* Basic Immunology 3(3) Coreq: AVS 4161. 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 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 4151* Animal Products Laboratory 0(3) Non-credit laboratory to accompany AVS 4150. Coreq: AVS 4150.

AVS (BIOL, MICR) 4160* Basic Immunology 3(3) Coreq: AVS 4161. Focuses on the development of the business plan, business from the initial idea through operations.

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 4160.

AVS 4161* Equine Exercise Physiology Laboratory Q(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. Focusses 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 4170.

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

AVS 4200* Poultry Science On-line 3(0) On-line 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 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. Preq or concurrent enrollment: MICR 4140.

AVS 4440* Animal and Veterinary Sciences Extension Experience 1-3(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. Preq: Consent of instructor.

AVS 4440* Animal and Veterinary Sciences Extension Experience Laboratory 0(2) Non-credit laboratory to accompany AVS 4440. Coreq: AVS 4440.

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

AVS 4442 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. Preq: Junior standing in Animal and Veterinary Sciences and consent of instructor. Coreq: AVS 4441.

AVS 4444 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. Preq: Junior standing in Animal and Veterinary Sciences and consent of instructor. Coreq: AVS 4441.

AVS 4445 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. Preq: Junior standing in Animal and Veterinary Sciences and consent of instructor. Coreq: AVS 4441.

AVS 4446 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. Preq: Junior standing in Animal and Veterinary Sciences and consent of instructor. Coreq: AVS 4441.

AVS 4447 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. Preq: Junior standing in Animal and Veterinary Sciences and consent of instructor. Coreq: AVS 4441.

AVS 4448 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. Preq: Junior standing in Animal and Veterinary Sciences and consent of instructor. Coreq: AVS 4441.

AVS 4449 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. Preq: Junior standing in Animal and Veterinary Sciences and consent of instructor. Coreq: AVS 4441.


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. Preq: AVS 1500 and AVS 3100. 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 and non-pregnant cows are discussed. Emphasizes methods of artificial insemination, pregnancy detection, and computer record keeping to achieve a high level of reproductive efficiency in cattle. Preq: AVS 1500 and AVS 3100. Preq 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 4560* Animal Physiology 1 3(3) Aided 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) Aided 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 (BIOL) 4800* Vertebrate Endocrinology 3(3) Introduction to the basic principles of neuro-endocrine 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 BIOL 4800. Preq: 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 1-3(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 and final reports and oral reports. May be repeated for a maximum of four credits. Preq: Consent of instructor.