

Animal Science Courses – General Catalog

Student must do an Override or appropriate form to enroll.

AGRI 192 01(0-0-2). Orientation to Agricultural Systems. F, \$

Freshman inquiry course in agriculture. Information and skills necessary to succeed in majors in the agricultural sciences.

AGRI 292 01(1-0-0). Transfer Seminar. F

Transfer inquiry course in agriculture. Information and skills necessary to succeed in majors in the agricultural sciences.

ANEQ 101 03(3-0-0). Food Animal Science. F, S.

Development, organization, trends, and management of the livestock industry; emphasis on applying science to the production of food and fiber.

ANEQ 102 04(3-2-0). Introduction to Equine Science. F, S.

Equine physiology, production systems and management systems as it pertains to the equine industry and management. Limited to Animal Science and Equine Science majors until prior to semester beginning.

ANEQ 201A-B 02(0-4-0). Preparation of Horses for Competition. F, S.

Prerequisite: Written consent of instructor.

Development of skills to prepare and present horses in competitions aimed at enhancing their value. A) Western. B) English.

ANEQ 220 02(2-0-0). Feeds and Feeding. F, S.

Prerequisite: ANEQ 101 or ANEQ 102.

Advantages and limitations of feedstuffs; nutrients and their functions; and feed practices for all physiological stages of livestock.

ANEQ 230 03(3-0-0). Farm Animal Anatomy and Physiology. F, S.

Prerequisite: 3 credits of 100-level LIFE.

Basic concepts of farm animal anatomy and physiology; emphasis on growth, digestion and reproduction.

ANEQ 250 03(1-4-0). Live Animal And Carcass Evaluation. F, S.

Prerequisite: ANEQ 101 or ANEQ 102.

Growth, development, and value-determining characteristics of market animals. (\$)

ANEQ 286 02(1-2-0). Livestock Practicum. F, S.

Prerequisite: ANEQ 101 or ANEQ 102 or concurrent enrollment with either.

Livestock breeds and terminology; classification of feedstuffs; livestock handling and care; basic animal management techniques, hands-on experience.

ANEQ 300A-T. Topics in Animal Sciences. F, S.

Prerequisite: ANEQ 101 or ANEQ 102. Credit not allowed for both ANEQ 300B and BI 300.

- A) Livestock handling 01(1-0-0). F, S
- B) /BI 300. Livestock entomology 01(1-0-0). S
- E) Family ranching 01(1-0-0). S
- L) Health programs/quality assurance 02(2-0-0). S
- N) Seed-stock merchandising 02(1-2-0). F

Prerequisite: Written consent of instructor.

- T) Event, fair, and show management 01(1-0-0).
- U) Seedstock Sale Management 02(2-0-0). S

Prerequisite: ANEQ 300N.

Develop, plan, and implement an effective seedstock cattle sale based on genetic information, customer service principles, and client relationships.

- W) Equine Manure Management 01(1-0-0). S

Prerequisite: ANEQ 101 or ANEQ 102.

Practices that maximize benefits of manure to soils and crops while minimizing hazards to air and water quality; complying with regulations.

ANEQ 310 03(3-0-0). Animal Reproduction. F, S.

Prerequisite: ANEQ 230 or BMS 300.

Anatomy and physiology of the reproductive system; causes of reproductive failure in farm animals; methods of improving reproductive performance.

ANEQ 315 02(1-2-0). Equine Behavior. S.

Prerequisite: ANEQ 102; sophomore or higher standing.

Equine behaviors related to training and learning.

ANEQ 320 03(3-0-0). Principles of Animal Nutrition. F, S.

Prerequisite: ANEQ 230 or BMS 300; 3 credits 100-level chemistry.

Understanding of nutrients and nutrient function required to support animal life through all physiological states.

ANEQ 322 02(2-0-0). Pet Nutrition. F, S, SS.

Offered only as an online course through Continuing Education at: <http://www.learn.colostate.edu>

Prerequisite: ANEQ 320; ANEQ 345; FSHN 350.

Nutrients, nutrient requirements, feeding practices, food sources and management for companion animals (dogs, cats, birds, fish, reptiles, etc).

ANEQ 323 02(2-0-0). Zoo Nutrition. F, S, SS.

Offered only as an online course through Continuing Education at: <http://www.learn.colostate.edu>

Prerequisite: ANEQ 320; ANEQ 345; FSHN 350.

Unique nutritional requirements of mammalian, avian, and reptile captive wild animals; management protocols needed.

ANEQ 330 03(3-0-0). Principles of Animal Breeding. S.

Prerequisite: BZ 350 or LIFE 201 or SOCR 330; three credits in statistics.

Genetic principles underlying animal improvement; elementary population genetics; heritability; systems of mating; selection.

ANEQ 340 03(0-6-0). Horse Training Laboratory I. F.

Prerequisite: Written consent of instructor.

Practical training skills using a yearling or two year old: in-hand, restraint, ground driving, longeing, first rides, stable management. (\$)

ANEQ 341 03(0-6-0). Horse Training Laboratory II. S.

Prerequisite: ANEQ 340.

Skills in training for specific riding maneuvers, conditioning, fitting for sale and stable management. (\$)

ANEQ 344 04(3-2-0). Principles of Equine Reproductive. F.

Prerequisite: ANEQ 102; ANEQ 230 or ANEQ 310 or BMS 300 or BMS 305 or VS 333.

Principles of reproduction and reproductive management of the mare and stallion.

ANEQ 345 03(3-0-0). Principles of Nutrition: Equine Applications. F, S.

Prerequisite: ANEQ 102; ANEQ 230 or ANEQ 320 or BMS 300 or BMS 305 or VS 333; 3 credits 100-level chemistry; 3 credits of math.

Principles of nutrition; application in feeding horses in different physiological states to promote health and well-being.

ANEQ 346 03(3-0-0). Equine Disease Management. F.

Prerequisite: ANEQ 230 or BS 230 or BS 300 or BS 305 or VS 333.

Lameness and common diseases of horses.

ANEQ 347 02(2-0-0). Equine Event Management. F, S, SS.

Prerequisite: ANEQ 102.

Production and management of equine related events.

ANEQ 348 02(1-2-0). Equine Training Techniques. S.

Prerequisite: ANEQ 315.

Training techniques in multiple riding disciplines.

ANEQ 349 02(1-2-0). Packing and Outfitting. F, S.

Prerequisite: ANEQ 102 and written consent of instructor.

Outfitting and packing the horse; hitches, knots, and horse care; planning pack trips, setting up camp; business aspects of outfitting. Overnight pack trip included. (\$)

ANEQ 350A-F Var. Animal and Product Judging. F, S.

Maximum 5 credits for any subtopic with a maximum of 3 credits in any one semester. Maximum of 12 credits allowed for any combination of the following courses: ANEQ 350A-E, ANEQ 384, ANEQ 487, ANEQ 495, ANEQ 496.

A) Meat animal. (fall then spring)

B) Meats. (fall then spring)

C) Dairy. (spring then fall)

D) Horses I. 2 credits (spring)

E) Wool. 1 credit per semester

F) Horse Judging II. 3 credits (fall)

ANEQ 351 02(1-2-0) Techniques in Therapeutic Riding. F, S.

Prerequisite: ANEQ 102.

Equine assisted activities including therapeutic horseback riding, hippotherapy, driving and vaulting, equine assisted mental health treatments, and programs for youth at risk.

ANEQ 358 01(1-0-0). Equine Sale Management. F.

Prerequisite: Written consent of instructor. Credit not allowed for both ANEQ 358 and ANEQ 300T.

Skills necessary to organize, promote, and host an equine sale.

ANEQ 359 01(1-0-0). Equine Sale Preparation. S.

Prerequisite: ANEQ 358; written consent of instructor.

Preparation of horses and horse sale management.

ANEQ 360 03(3-0-0). Principles of Meat Science. F.

Prerequisite: 3 credits 100-level chemistry.

Structure, composition, and biology of muscle and associated tissues; wholesomeness, nutritive value, and palatability of beef, pork, and lamb.

ANEQ 384 Var [1-5]. Supervised College Teaching. F, S, SS.

Prerequisite: Written consent of instructor.

Maximum of 6 credits allowed in course. Maximum of 12 credits allowed for any combination of the following courses: ANEQ 350A-E, ANEQ 384, ANEQ 487, ANEQ 495, ANEQ 496.

ANEQ 386A-C. Equine Practicum.

Prerequisite: ANEQ 102.

A) Equine training and management 02(1-2-0). F, S, SS

B) Equine reproductive management 02(1-2-0) (\$) S, SS

Prerequisite: ANEQ 344 or ANEQ 444.

C) Equine farrier management 01(0-2-0). S

ANEQ 440 03(3-0-0). Equine Production and Industry. F, S. Prerequisite: ANEQ 346, ANEQ 344 or ANEQ 444, ANEQ 345 or ANEQ 446.

For students planning a career in the horse industry; management of facilities, production systems, personnel, marketing, and biological systems.

ANEQ 442 02(0-4-0). Riding Instructor Training. F, S.

Prerequisite: ANEQ 102; written consent of instructor.

Teaching techniques; theory; handling of large mounted groups, beginner through advanced levels.

ANEQ 445 02(1-3-0). Foaling Management. S.

Prerequisite: ANEQ 344 or ANEQ 444.

Management of the foaling mare and new born foal; monitoring techniques, preventative and emergency care procedures.

° ANEQ 448/SOCR 448 03(2-2-0). Manure Management and the Environment. F (even years).

Prerequisite: 3 credits 100-level chemistry. Credit not allowed for both ANEQ 448 and SOCR 448.

Manure management; maximizing benefits to soils and crops; minimizing air and water quality hazards; complying with regulations.

ANEQ 460 02(2-0-0). Meat Safety. F.

Prerequisite: 3 credits 100-level chemistry.

Meat safety; food borne pathogens; hazard analysis critical control points (HACCP) and total quality management (TQM) practices.

ANEQ 470 03(2-2-0). Meat Systems. S.

Prerequisite: Senior status.

Current issues in U.S. meat production, processing, marketing, and consumption.

ANEQ 472 03(2-2-0). Sheep Systems. F.

Prerequisite: Senior status.

Sheep production under farm and ranch conditions; products, breeds, breeding, nutrition, reproduction, and management systems.

ANEQ 473 03(2-3-0). Dairy Systems. F.

Prerequisite: Senior status.

Integration of nutrition, genetics, physiology, and economics for management decisions of dairy farm operations and production and marketing of milk.

ANEQ 474 03(2-2-0). Swine Systems. S.

Prerequisite: Senior status.

Production of purebred and commercial swine; breeds, breeding, feeding, marketing, and management.

ANEQ 475 02(2-0-0). Travel Abroad - Animal Agriculture. F, S, SS.

Prerequisite: Written consent of instructor.

Onsite evaluation of International animal agriculture systems with emphasis on production, marketing, and management.

ANEQ 476 03(3-0-0). Feedlot Systems. S.

Prerequisite: Senior status.

Feedlot facilities; nutrition; procurement, merchandising, handling, processing cattle; health care; custom feeding; managerial duties.

ANEQ 478 03(2-2-0). Beef Systems. F.

Prerequisite: Senior status.

Beef production as related to consumer through seedstock segments. Major emphasis on cow-calf management.

ANEQ 480 02(1-2-0). Animal Ultrasonography. F, S.

Prerequisite: ANEQ 230 and ANEQ 310.

Understanding an Ultrasound machine, the use as a management tool, and the application in farm animals.

ANEQ 487 Var. Internship. Maximum of 6 credits allowed in course. Maximum of 12 credits allowed for any combination of the following courses: ANEQ 350A-E, ANEQ 384, ANEQ 487, ANEQ 495, ANEQ 496.

Prerequisite: Written consent of instructor.

ANEQ 495 Var. Independent Study. Maximum of 6 credits allowed in course. Maximum of 12 credits allowed for any combination of the following courses: ANEQ 350A-E, ANEQ 384, ANEQ 487, ANEQ 495, ANEQ 496.

Prerequisite: Written consent of instructor.

ANEQ 496 Var [1-5]. Group Study.

Maximum 6 credits allowed in course. Maximum of 12 credits allowed for any combination of the following courses: ANEQ 350A-E, ANEQ 384, ANEQ 487, ANEQ 495, ANEQ 496.

Prerequisite: Written consent of instructor.

Note: Cattle Fax (Spring only).

ANEQ 500 Var [1-6]. Recent Developments. SS.

Prerequisite: Graduate status.

Recent developments in animal science, avian science, and food technology.

ANEQ 510 04(3-2-0). Bovine Reproduction Management. F.

Prerequisite: ANEQ 310.

Role of reproduction in economic efficiency of cattle production systems. Causes of delayed breeding and nonpregnancy, abortion and perinatal mortality.

***ANEQ 520 03(3-0-0). Applied Comparative Nutrition. F (even years).**

Prerequisite: ANEQ 320 or FN 550 and FN 551.

Comparative digestion strategies and mechanisms of nutrient utilization for terrestrial vertebrates; livestock, pets, wildlife, and zoo animal models.

ANEQ 522 03(3-0-0). Animal Metabolism. F.

Prerequisite: C 245 and C 246 or C 346.

Nutrient digestion, absorption, transport and metabolism in monogastric and ruminant domestic species as affected by physiological changes.

ANEQ 548/SOCR 548 04(2-2-1). Issues in Manure Management. F.

Prerequisite: 3 credits 100-level chemistry.

Credit allowed for only one of the following courses: ANEQ 448, ANEQ 548, SOCR 448, SOCR 548.

Manure management practices maximizing benefits to soils and crops while minimizing hazards to air and water quality and complying with regulations.

ANEQ 550A 02(1-2-0). Basic Research Surgery - Farm Animal. F.

Prerequisite: ANEQ 230 or BMS 230 or BMS 300 or BMS 305 of VS 333.

Basic principles and techniques of animal surgery to meet ACUC requirements for experimental procedures.

ANEQ 550B 02(1-2-0). Basic Research Surgery - Rodent. S.

Prerequisite: ANEQ 230 or BMS 230 or BMS 300 or BMS 305 of VS 333.

Basic principles and techniques of animal surgery to meet ACUC requirements for experimental procedures.

ANEQ 551 02(1-2-0) Field Necropsy. F, S.

Prerequisite: ANEQ 230 or BMS 230 or BMS 300 or BMS 305 of VS 333; graduate status.

Field necropsy techniques for collection of animal tissues for submission to a diagnostic laboratory.

ANEQ 565 03(3-0-0). Interpreting Animal Science Research. S.

Prerequisite: ANEQ 101 or ANEQ 102; 3 credits statistics.

Designing, conducting, analyzing, and reporting of animal science research.

ANEQ 567 02(2-0-0). HACCP Meat Safety. S.

Prerequisite: ANEQ 460 or written consent of instructor.

Control of health problems in meat products through hazard analysis critical control point (HACCP) and total quality management (TQM) practices.

°ANEQ 575 03(2-2-0). Computational Biology in Animal Breeding. F (Odd years).

Prerequisite: Graduate standing or written consent of instructor.

Numerical analysis and use of computers to solve problems in animal improvement.

ANEQ 587 Var [1-9]. Internship.

Prerequisite: Written consent of instructor.

° ANEQ 610 02(2-0-0). Hormonal Regulation of Growth. S (Odd years).

Prerequisite: BS 501 or written consent of instructor.

Cellular and molecular regulation of animal growth by hormones and growth factors.

***ANEQ 621 03(3-0-0). Vitamins and Mineral Metabolism. S (even years).**

Prerequisite: Graduate status.

Vitamin and mineral metabolism in domestic animals.

***ANEQ 631 03(2-0-1). Selection Index Theory. S (even years).**

Prerequisite: Graduate status.

Quantitative methods for genetic evaluation: selection index theory and introduction to best linear unbiased prediction.

ANEQ 660 01(1-0-0). Topics in Meat Safety. F, S.

Prerequisite: ANEQ 567.

Topics of current concern in meat safety.

ANEQ 676 03(1-4-0). Molecular Approaches to Food Safety. F (odd years).

Prerequisite: MIP 300; MIP 301 or MIP 334 and MIP 335.

Molecular subtyping, tracking and control; molecular ecology and evolution of food-borne pathogens; molecular pathogenesis of food-borne diseases. .

ANEQ 699 Var. Thesis.

Prerequisite: Written consent of instructor.

°ANEQ 720 03(3-0-0). Nutritional Energetics. F (odd years).

Prerequisite: Graduate status.

Dietary energy use to meet animal requirements for maintenance, growth, pregnancy, and lactation; environmental, nutritional, and physiological effects.

°ANEQ 725 03(3-0-0). Rumen Metabolism. S (odd years).

Prerequisite: Graduate status.

Microbial degradation, transformation, and synthesis of ingested nutrients, feed particle passage kinetics in the rumen.

° ANEQ 730 03(3-0-0). **Advances in Cattle Breeding**. S. (odd years).

Prerequisite: Graduate status.

Literature and research methods in beef cattle breeding.

* ANEQ 731 03(2-0-1). **Parameter Estimation for Genetic Prediction**. F (even years).

Prerequisite: Graduate status.

Models used in analysis of livestock data and restricted maximum likelihood procedures for mixed models.

ANEQ 784 Var. Supervised College Teaching. F, S, SS.

Prerequisite: Written consent of instructor.

ANEQ 792A-F 01(0-0-1). Seminar.

Prerequisite: Graduate status.

A) General. B) Breeding/genetics. C) Physiology. D) Meat sciences. E) Nutrition. F) Management.

ANEQ 795 Var. Independent Study.

Prerequisite: Graduate status; written consent of instructor.

ANEQ 799 Var. Dissertation.

Prerequisite: Graduate status; written consent of instructor.

° Alternate year offering (odd); * Alternate year offering (even); + Field trips; \$ Special course fee