

This course will meet for two hours once each week of the Spring Semester. The first hour will be traditional lecture and the second hour will be a combination of student projects, labs and demonstrations of applied clinical procedures. Bovine embryo transfer and closely related topics such as: female reproductive physiology, estrus synchronization, semen sexing and reproductive disease will be emphasized. In addition, several class periods will be devoted to the use of ultrasound for diagnosis of reproductive and non-reproductive conditions.

VDPAM 365X. Animal Welfare Judging and Assessment.

Cr. 1. F.

Preparation for competition in the Intercollegiate Animal Welfare Judging Contest. Development of critical appraisal and oral communication skills in regard to animal welfare. Animal behavior, physiology, health and performance parameters, basic husbandry, housing and preventive care will be explored for select farmed, companion and exotic species. Optional field trips.

VDPAM 402. Advanced Dairy Production Informatics.

Cr. 2. Repeatable. F.S. *Prereq: VDPAM 309 or permission of instructor*

Advanced coverage of concepts related to collection, manipulation, analysis and reporting of information used by dairy farms and their consultants. Hands on experience with Dairy Comp 305 and PC Dart as well as other dairy management and information software. Non-major graduate credit.

VDPAM 407. Evidence Based Clinical Decision Making.

(Dual-listed with 507). Cr. 1. S. *Prereq: Permission of instructor*

Discussion, lectures and laboratories to assess the quality and significance of medical evidence in making informed decisions about the treatment of individual animals and animal populations.

VDPAM 408. Poultry Diseases.

(Dual-listed with 508). Cr. 2. Alt. S., offered 2014. *Prereq: Enrollment in College of Veterinary Medicine or permission of instructor*

Bacterial, viral, parasitic, and nutritional diseases of domestic poultry and gamebirds; biosecurity, immunization, and management procedures to prevent poultry diseases.

VDPAM 409. Veterinary Practice Management and Organization.

Cr. 2. F.

An A to Z introduction to proven veterinary practice management methods and strategies. The student will follow a detailed hands-on workbook describing most of the processes and procedures of day to day veterinary practice. The class content will be composed of class room discussions, didactic presentations, a practical workbook, ancillary handouts, and both in and out of class assignments.

VDPAM 414. Veterinary Practice Entrepreneurship.

(Dual-listed with 514). Cr. 2. S.

Formal exposure to the entrepreneurial and business skills necessary to own and operate a successful veterinary practice or other small business opportunity.

VDPAM 416. Bovine Reproduction Evaluation Laboratory.

Cr. 1. Repeatable. F.S. *Prereq: Classification as a third year student in veterinary medicine. 10 students per section*

Bovine rectal palpation techniques will be repetitively taught in 7 four-hour sessions. Students will also learn techniques of epidural anesthesia, artificial insemination, and ultrasonic imaging. University-owned cattle will be used. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 419. Advanced Swine Production Informatics.

Cr. 1. F. Prereq: *VDPAM 309 or permission of instructor*

Advanced coverage of concepts related to collection, manipulation, analysis and reporting of information used by swine production companies. Production, financial, diagnostic and clinical data will be covered in the course. Hands-on experience with computer software and information systems used in swine production will be provided. Students will learn to objectively evaluate the validity of information that is presented to them and also be able to make practical and useful recommendations regarding the types of information tools that can/should be used. The students will learn what software and information systems are available and be able to critically evaluate them. Non-major graduate credit.

VDPAM 420. Preceptorship in Veterinary Medical Practice.

Cr. 1-6. Repeatable. F.S.SS. Prereq: *Classification as a fourth year student in veterinary medicine.*

Advanced course in production animal medicine with emphasis on government, industry or veterinary practice settings. Forty hours clinical experience per week. Assignments will be preceptorships with a practicing veterinarian, governmental agency and/or production unit. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 421A. Calving at Great Plains Veterinary Educational Center.

Cr. 1. F.S.SS. Prereq: *Fourth year classification in veterinary medicine; ability to provide own transportation to each site.*

GPVEC, located in Clay Center, Nebraska offers one week clinical training in production animal medicine species. All sections will be held at GPVEC. Students need to provide their own transportation to the site and overnight stays at or near GPVEC are required. The Calving Elective provides an opportunity to expand knowledge and experience in all phases of calving management. The program is structured around normal calving operations at U.S. MARC. The GPVEC and U.S.MARC veterinary staff will make an effort to include students in veterinary activities that take place during the Calving Elective. The opportunity exists for assistance in diagnosis, treatment, and management of many commonly encountered situations in the dam and calf. Students are encouraged to make every effort to become involved in U.S. MARC calving activities. Direct involvement includes routine husbandry activities beyond those involving traditional veterinary roles which are expected of the student.

VDPAM 421B. Bull Breeding Soundness at Great Plains Veterinary Educational Center.

Cr. 1. S. Prereq: *Classification as a fourth year student in veterinary medicine; ability to provide own transportation to each site.*

The Bull Breeding Soundness Examination Elective involves training in all phases of the examination, collection, and semen evaluation for up to 200 herd bulls and/or sale bulls as recommended by the Society for Theriogenology. Culture for trichomoniasis and discussion of bull management and breeding season considerations.

VDPAM 421C. Clinical Calving at Great Plains Veterinary Educational Center.

Cr. 1. S. *Prereq: Classification as a fourth year student in veterinary medicine; ability to provide own transportation to each site.*

All sections will be held at GPVEC. Students need to provide their own transportation to the site and overnight stays at or near GPVEC are required. This clinical rotation involves participation in veterinary field services at the U.S. MARC during calving season. Activities include examination, diagnosis, treatment, and intensive care of individual animals as well as occasional herd problems. Additional activities include clinical and/or microbiological diagnostic techniques, clinical pharmacology, record keeping, and health surveillance. Students will accompany the "on duty" veterinarian on all cases, including emergency, after-hours calls. The majority of clinical activities during calving season are related to peri-parturient, perinatal and neonatal problems. Students will assist in handling difficult calf deliveries and cesarean sections and will be involved with the necropsy examination of all animals lost during the previous 24 hours.

VDPAM 421D. Feedlot Management at Great Plains Veterinary Educational Center.

Cr. 1. F.S. *Prereq: Classification as a fourth year student in veterinary medicine; ability to provide own transportation to each site.*

GPVEC, in Clay Center, Nebraska offers one week clinical training in production animal medicine species. All sections will be held at GPVEC. Students need to provide their own transportation to the site and overnight stays at or near GPVEC are required. Evaluation of production techniques and production efficiency including ration and feeding management, health management program development and evaluation, environmental management, quality assurance, feedlot necropsy and microbiology techniques, and break even analysis. Approaches to solve seasonal health problems within the management objectives for different feed yards are the strong emphasis of this elective. Students may have the opportunity to follow cattle to a packing plant to learn the methods for tracking animals into the food chain, identifying production problems that are not diagnosable at the feedlot level, and monitoring beef quality assurance. Biosecurity activities will be emphasized and practiced.

VDPAM 421E. Weaning Management at Great Plains Veterinary Educational Center.

Cr. 1. F. *Prereq: Classification as a fourth year student in veterinary medicine; ability to provide own transportation to each site.*

GPVEC, located in Clay Center, Nebraska offers one week clinical training in production animal medicine species. All sections will be held at GPVEC. Students need to provide their own transportation to the site and overnight stays at or near GPVEC are required. This is a hands-on elective in which students participate in the weaning management at the U.S. Meat Animal Research Center. Students will be involved with processing, feeding, finding, and treating sick calves. Additionally, students will be introduced to developing weaning rations and managing feed delivery. Students will also learn how to develop vaccination and treatment protocols and each student will have as an objective the development of their own vaccination and treatment protocol template. As time allows, students will visit commercial feed yards and cover production management topics.

VDPAM 421F. Pregnancy Examination at Great Plains Veterinary Educational Center.

Cr. 1. F. *Prereq: Classification as a fourth year student in veterinary medicine; ability to provide own transportation to each site.*

GPVEC, located in Clay Center, Nebraska offers one week clinical training in production animal medicine species. All sections will be held at GPVEC. Students need to provide their own transportation

to the site and overnight stays at or near GPVEC are required. The Pregnancy Examination Elective involves students, the GPVEC faculty, and U.S.MARC personnel during pregnancy examination. Activities involve rectal examinations for pregnancy, collecting data and entry into the CowHerd/CowCalf computer software program to evaluate the reproductive performance of the herd. This elective is designed for students who have some palpation experience and are interested in honing their skills. Some ultrasound technology will be utilized. Pregnancy Examination occurs during yearly fall herd work at the U.S. MARC, therefore, speed and accuracy will be stressed, rather than basic technique. Introduction into rectal examination for reproductive use is stressed during the Bovine Reproduction Elective.

VDPAM 421G. Bovine Reproduction at Great Plains Veterinary Educational Center.

Cr. 1. F. *Prereq: Classification as a fourth year student in veterinary medicine; ability to provide own transportation to each site.*

GPVEC, located in Clay Center, Nebraska offers one week clinical training in production animal medicine species. All sections will be held at GPVEC. Students need to provide their own transportation to the site and overnight stays at or near GPVEC are required. This elective involves some of the clinical techniques utilized in beef cattle reproductive management. The majority of time will be spent in the examination of cows for pregnancy and the collection of ovarian data from non-pregnant cows. Additional opportunities will involve hands on activities such as data collection and analysis, breeding herd nutrition, artificial insemination, and the use of ultrasound technology.

VDPAM 421J. Lambing at Great Plains Veterinary Educational Center.

Cr. 1. S. *Prereq: Classification as a fourth year student in veterinary medicine; ability to provide own transportation to each site.*

GPVEC, located in Clay Center, Nebraska offers one week clinical training in production animal medicine species. All sections will be held at GPVEC. Students need to provide their own transportation to the site and overnight stays at or near GPVEC are required. The Lambing Elective involves students with the U.S. MARC lambing crew and GPVEC faculty in observations, assistance with delivery when necessary, and routine lambing duties. Students will work with veterinary personnel in sheep necropsy and health surveillance. Activities and objectives closely parallel to those listed in the Calving Elective. Self-study material will be provided covering topics such as pre-breeding and breeding, pregnancy diagnosis, pregnant ewe management, pre-lambing ewe/lambing management, feeder lamb health and nutrition management, and replacement ewe and ram management.

VDPAM 421K. Equine Dentistry at Great Plains Veterinary Educational Center.

Cr. 1. S. *Prereq: Classification as a fourth year student in veterinary medicine; ability to provide own transportation to each site*

GPVEC, located in Clay Center, Nebraska offers one week clinical training in production animal medicine species. All sections will be held at GPVEC. Students need to provide their own transportation to the site and overnight stays at or near GPVEC are required. The Equine Dentistry Elective provides the opportunity for students to expand their knowledge and experience related to equine dentistry. The rotation consists of lectures on topics relevant to equine dental care and hands-on laboratories during which students practice routine dental care procedures on U.S.MARC horses. Equine Dentistry will involve both lecture and lab time at about equal shares.

VDPAM 421M. Preconditioning at Great Plains Veterinary Educational Center.

Cr. 1. F.SS. *Prereq: Classification as a fourth year student in veterinary medicine; ability to provide own transportation to each site.*

GPVEC, located in Clay Center, Nebraska offers one week clinical training in production animal medicine species. All sections will be held at GPVEC. Students need to provide their own transportation to the site and overnight stays at or near GPVEC are required. The Preconditioning Elective provides the opportunity for students to expand their knowledge and experience in the development and implementation of calf preweaning programs. Students will assist GPVEC and U.S.MARC personnel during routine processing of U.S.MARC spring-born calves prior to weaning. GPVEC faculty will also lead discussions related to vaccine and dewormer protocols, preweaning nutrition, and other topics related to preparing beef calves for weaning.

VDPAM 421P. Gomer Bull Surgery at Great Plains Veterinary Educational Center.

Cr. 1. F. *Prereq: Classification as a fourth year student in veterinary medicine; ability to provide own transportation to each site.*

GPVEC, located in Clay Center, Nebraska offers one week clinical training in production animal medicine species. All sections will be held at GPVEC. Students need to provide their own transportation to the site and overnight stays at or near GPVEC are required. The Gomer Bull Surgery Elective is designed to give students interested in food animal surgery an opportunity to practice their surgical skills by performing penile translocations and epididymectomies on U.S.MARC teaser bull candidates. Lectures specific to gomer bull surgery as well as other topics related to food animal surgery will be presented during this elective.

VDPAM 422A. Cattle Marketing-Southern Plains States Beef Cattle Production Medicine.

Cr. 2. Repeatable. S.SS. *Prereq: VDPAM 310; ability to provide own transportation to each site*

Cattle Marketing is for students interested in gaining a better understanding of how cattle are marketed in the beef industry. The elective will be conducted in Oklahoma and will consist of 1 to 2 day lecture component with the remaining time spent in the field – either “buying” cattle at auction markets or inspecting/evaluating our buys (maybe even helping work/process them) at client operations. Buying strategies – both traditional and “creative” – such as price determination, calculating breakevens, market trend evaluation, value differentiation, and detecting the “sweet spot” in the market will be covered. This elective will give students a better understanding of how stocker/feedlot clients purchase cattle. Overnight stays at or near the production sites are required. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 422B. Cattle Processing-Southern Plains States Beef Cattle Production Medicine.

Cr. 2. F.S.SS. *Prereq: VDPAM 310; ability to provide own transportation to each site*

This elective is for students interested in getting “hands on” cattle working experience. The elective is based out of Oklahoma, but students will be working cattle at multiple locations in Oklahoma, Texas, Kansas, and Missouri (season/time of year dependent). Every attempt will be made to schedule calf/stocker/feedyard cattle processing as well as heifer/cow pregnancy examinations with and without ultrasound where season/weather and client compliance allow. The fundamentals of cattle working – BQA, proper product administration, chute operation, and cattle handling techniques will be reviewed, however, the majority of the elective will be conducted at client operations with work to get completed.

Students need to provide their own transportation to the site and overnight stays at or near the production sites are required. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 422C. Beef Feedlot-Southern Plains States Beef Cattle Production Medicine.

Cr. 2. F.S.SS. *Prereq: VDPAM 310; ability to provide own transportation to each site* This elective is for students interested in getting “hands on”, working experience at a commercial feedyard in Oklahoma. This experience will consist of working with and assisting the feedyard crew in their daily activities including: detecting and treating sick cattle, processing newly arrived cattle, hospital pen management, performing necropsies, and overall cattle care in general. Other learning opportunities such as feeding (bunk management), feed mill operations, feedyard maintenance, pasture management, and feedyard management may be available if interested and timing of elective coincides with activities. Students need to provide their own transportation to the site and overnight stays at or near the production sites are required. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 422D. Cattle Client Consulting-Southern Plains States Beef Cattle Production Medicine.

Cr. 2. F.S.SS. *Prereq: VDPAM 310; ability to provide own transportation to each site* This elective is for students interested in beef production medicine consulting. It will be conducted in a veterinary practice in Oklahoma and will consist of “shadowing” the practice owner on consulting visits to feedyard and stocker clients and other practice activities such as cattle buying, cattle working, attending producer and/or veterinary meetings, and conducting research (depending on the time of year). Students need to provide their own transportation to the site and overnight stays at or near the production sites are required. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 422E. Beef Cattle Calving-Southern Plains States Beef Cattle Production Medicine.

Cr. 2. F.S. *Prereq: VDPAM 310; ability to provide own transportation to each site* This elective provides students an opportunity to assist a cow-calf operation in northwest Missouri with calving. This operation typically calves between 400 and 600 head each spring. Calving experience is not required, but a good understanding of working around cattle is necessary. Students will be actively participating in the day to day, normal calving operation routine – including detecting and sorting off “springers”, calf “watch”, detecting when intervention is needed and assisting delivery, caring for and monitoring newborns and dams for good health and early disease detection, tagging/processing new calves, treating calves needing intervention and performing other routine calving event chores. Students need to provide their own transportation to the site and overnight stays at or near the production sites are required. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 422F. Stocker Experience-Southern Plains States Beef Cattle Production Medicine.

Cr. 2. F. *Prereq: VDPAM 310; ability to provide own transportation to each site* This elective is for students interested in getting “hands on”, working experience at a stocker operation in Oklahoma. This experience will consist of working with and assisting the stocker client in their daily activities including: detecting and treating sick cattle, processing newly arrived cattle, performing necropsies, and overall cattle care in general. Other learning opportunities such as feeding (bunk management), and pasture and grazing management may be available if interested and timing of elective

coincides with activities. Students need to provide their own transportation to the site and overnight stays at or near the production sites are required. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 426. Veterinary Toxicology.

(Dual-listed with 526). Cr. 3. S. *Prereq: Classification as a third year student in veterinary medicine*

Study of toxicological diseases of animals emphasizing clinical recognition, circumstances of poisoning, differential diagnosis with clinical and laboratory data, therapeutic procedures, preventive management and public health implications. Supplemented with case-based materials.

VDPAM 436. Beef Records Analysis.

Cr. 1-2. Repeatable. F.S. *Prereq: Classification in Veterinary Medicine, VM1-VM3 or special permission of instructor*

The class will have both a lecture and lab component and students can enroll in one or both. Lectures will emphasize current production and evaluation techniques for beef cow/calf operations and students will learn to conduct and critically assess production and financial data using a standardized approach. Lab activities will allow students an opportunity to work with individual beef cattle producers to identify areas for improving profitability, health, and sustainability. Each semester's content builds on the material from the previous semester. Enrolling in the class for multiple semesters will be encouraged.

VDPAM 437. Basic Clinical Skills for Production Medicine (MS 623-701): Dairy Herd Problem Identification.

Cr. 2. F.S.SS. *Prereq: Fourth-year classification in veterinary medicine*

Seven hours recitation/discussion and 33 hours clinical experience per week. Course taken for two weeks at University of Wisconsin, Madison, on a space-available basis. Learn to interpret DHI records and use them to identify and monitor herd problems of production, mastitis, reproduction, and replacement heifer management. Evaluate rates and treatment protocols of common dairy herd diseases. Assess dairy housing including ventilation and freestalls. Estimate costs of herd problems and develop partial-budgets.

VDPAM 438. Mastitis Problem Investigations (MS 623-703): Mastitis/Milk Quality.

Cr. 2. F.S.SS. *Prereq: Fourth-year classification in veterinary medicine*

Nine hours recitation/discussion and 31 hours clinical experience per week. Course taken for two weeks at University of Wisconsin, Madison, on a space-available basis. Learn to evaluate rates of clinical mastitis using manual and computerized (DC305) record systems. Interpret somatic cell count records to target mastitis problems. Collect samples and interpret milk microbiology reports. Evaluate mastitis risks in housing systems (stalls, bedded packs, etc). Analyze milking systems and milker practices. Develop mastitis treatment protocols.

VDPAM 439. Clinical Investigations of Fresh Cow and Calf Problems (MS 623-705): Applied Dairy Nutrition.

Cr. 2. F.S.SS. *Prereq: Fourth-year classification in veterinary medicine*

Three hours lecture, 37 hours clinical experience per week. Course taken for two weeks at University of Wisconsin, Madison, on a space-available basis. Learn to evaluate calf and peri-parturient cow management practices. Develop an investigation strategy for ambiguous herd problems. Collect samples

and interpret herd-based diagnostic tests for infectious and metabolic diseases. Assess environmental risk factors for metabolic and infectious disease including hygiene and housing. Assess nutritional status of herds via nutritional management, actual feed intake, particle length determination, etc.

VDPAM 445. Clinical Medicine.

Cr. 3. S. *Prereq: Third year classification in veterinary medicine*

Clinical diagnosis and treatment of diseases of swine, beef, dairy, and small ruminant.

VDPAM 450. Disturbances of Reproduction.

Cr. 4. F. *Prereq: Third-year classification in veterinary medicine*

General principles of normal reproductive functions in addition to environment, management and diseases causing disturbances in reproduction.

VDPAM 451. Clinical Embryo Transfer.

Cr. 2. F.S.SS. *Prereq: VDPAM 351; Fourth year classification in veterinary medicine*

Elective clinical assignment in techniques of embryo transfer. Enrollment is limited to four students per two week session. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 455. Diagnostic Laboratory Practicum.

Cr. 1. Repeatable. F.S. *Prereq: Fourth-year classification in veterinary medicine*

Practical experience in necropsy and test selection for the diagnosis of infectious and toxic diseases of livestock through exposure to cases in the ISU Veterinary Diagnostic Laboratory.

VDPAM 456. Veterinary Diagnostic Lab Methods & Applications.

Cr. 1. F. *Prereq: Classification as a second, third or fourth year student in veterinary medicine*

Case materials are used to develop diagnostic questions and to better understand the value of diagnostic tests. Testing methods and interpretation of diagnostic tests are coupled with sampling strategy and objective assessment of available evidence to provide accurate diagnosis.

VDPAM 463X. Feedlot Production Medicine.

Cr. 1. F.S. *Prereq: VDPAM 310; concurrent enrollment in VDPAM 421D (GPVEC Feedlot Management)*

One week VM4 elective that will focus on Midwestern feedlot production. This course is designed to complement the GPVEC Feedlot Production Medicine elective (VDPAM 421D) and concurrent enrollment is required. Specifically, this elective will address feedlot production practices common to Iowa and surrounding states, including feeding cattle on concrete or under roofs. Activities will include visitation and participation to representative feedlots in Iowa and discussion of production management issues. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 464. Advanced Stocker/Feedlot Medicine.

Cr. 2. F.S. *Prereq: VDPAM 310*

Two week advanced clinical rotation in stocker/feedlot beef production medicine held in Oklahoma. The

instructor will lead field trips as well as problem solving exercises where the student will apply concepts of stocker/feedlot health management, production and economic analysis, and disease control/prevention. Travel and overnight stays will be required. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 465X. Animal Welfare Clinical Rotation.

Cr. 2. Prereq: *Fourth year classification in veterinary medicine*

Two-week course for senior fourth year veterinary students to gain skills for collecting and interpreting animal welfare data, aid clients with identifying and achieving welfare goals, and assisting law enforcement with animal cruelty response. Field trips to food animal and companion animal facilities are mandatory.

VDPAM 476. Food Animal and Camelid Field Service.

Cr. 2. Repeatable. F.S.SS. Prereq: VDPAM 310; *Fourth year classification in Veterinary Medicine*

Elective course in food animal and camelid field services. Students will assist university veterinarians in delivering health care and production management services to the ISU livestock farms and other livestock farms in the local area. Focus will be on delivery of individual animal care and establishment of best practices for herd management of production systems at the university and in the region. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 477. Food Animal and Camelid Medicine and Surgery.

Cr. 2. Repeatable. F.S.SS. Prereq: *Fourth-year classification in veterinary medicine*

Clinical assignment focused on the management of food animal and camelid medicine and surgery cases. Specific instruction in clinical evaluation of cases coupled with appropriate diagnostic testing and therapeutic intervention will be emphasized. Additional instruction will be provided in disease prevention, intensive care and management of food animal and camelid species. Particular emphasis will be placed on appropriate on-label and extra-label drug usage in food animal species. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 479. Applied Swine Production Medicine Preceptorship.

Cr. 1-6. Repeatable. F.S.SS. Prereq: VDPAM 310

Advanced course in swine production medicine with emphasis on herd management, production analysis, and problem solving. Forty hours clinical experience per week. Assignments will be preceptorships with a practicing veterinarian and/or a production unit. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 480. Swine Production Medicine.

Cr. 2. Repeatable. F.S.SS. Prereq: VDPAM 310 or *permission of instructor*

Two week clinical rotation in swine production medicine. Students will be assigned to take the lead in investigating field based client cases with supervision of the instructors. Development of critical thinking skills that will allow students to apply concepts of herd management, production analysis,

economic analysis, and disease prevention in addressing client cases. Variable amounts of travel to farm sites will be required with the potential for rare overnight stays. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 481. Advanced Cow/Calf Production Medicine.

(Dual-listed with 581). Cr. 2. S. Prereq: *Completion of two semesters of VDPAM 436 or UNL equivalent (V MED 596 Cattle Production), fourth year classification in veterinary medicine*
Two-week senior elective that will focus on the economics of animal disease in cow/calf operations. Evidence based medicine and epidemiological principles will be used in investigation of disease outbreaks. Extensive partial budgeting used. Students will complete at least two disease investigations involving outbreaks in commercial cow/calf operations and communicate their findings to the class, the herd owner, and local practitioner. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 482. Applied Beef Production Medicine Preceptorship.

Cr. 1-6. Repeatable. F.S.SS. Prereq: *VDPAM 310 and permission of instructor; ability to provide transportation to each site*
Advanced course in beef production medicine with emphasis on herd management, production analysis, and problem solving. Forty hours clinical experience per week. Assignments will include preceptorships with a practicing veterinarian and/or a production unit. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 483. Beef Production Medicine.

Cr. 2. F.S.SS. Prereq: *VDPAM 310*
Two week advanced clinical rotation in beef production medicine. Fifteen hours recitation/discussion and 20 hours clinical experience per week. This course is designed to expose students to cow-calf and feedlot production concepts. The activities scheduled for the rotation depend greatly on the time of year. Whenever possible, the class incorporates field trips. Students should anticipate that travel, including overnight stays, may be required. These field trips can vary in length from several hours to several days and may include weekends. Typically, 3-4 days of the rotation are spent at the Great Plains Veterinary Education Center, Clay Center, NE. Students should, therefore, plan accordingly and contact the instructor, immediately, if they anticipate a conflict. Students should not schedule Grand Rounds during this rotation. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 484. Dairy Production Medicine.

Cr. 2. F.SS. Prereq: *VDPAM 310; Fourth-year classification in veterinary medicine*
Two week course in dairy production medicine combining class time with multiple on-farm visits to learn various management aspects (DHIA, DC305 & PC Dart record analysis, calf rearing through lactating cows, reproduction programs, udder health and milk quality, biosecurity, welfare, nutrition and cow comfort) for a wide variety of dairy operations. Students will learn the latest in dairy management by reviewing current topic articles and gain experience in farm evaluation through a group project. Fifteen hours recitation/discussion and 20 hours clinical experience per week. Biosecurity policies

require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 485. Applied Dairy Production Medicine Preceptorship.

Cr. 1-6. Repeatable. F.S.SS. *Prereq: VDPAM 484*

Advanced course in dairy production medicine with emphasis on herd management, production analysis, and problem solving. Forty hours clinical experience per week. Assignments will include preceptorships with a practicing veterinarian and/or a production unit. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

VDPAM 486. Introduction to Small Ruminant Production Medicine.

Cr. 1. S. *Prereq: Classification in Veterinary Medicine*

Survey of small ruminant production systems, common management practices, and disease processes of small ruminants. This course is intended to give the student a background in small ruminant medicine. Herd health, disease monitoring and prevention, and typical management systems will be emphasized in lecture.

VDPAM 487. Livestock Disease Prevention.

Cr. 3. F.

The course is designed for both the pre-veterinary and animal science majors who have an interest in production animal health, disease prevention methods, epidemiology of economically important agents, and the ecology of currently important pathogens found in North American livestock industries. It will focus on disease prevention principles for individuals and large production population systems.

VDPAM 488. Laboratory in Clinical Microbiology.

Cr. 1. Repeatable. F.S. *Prereq: Fourth-year classification in veterinary medicine*

Application of microbiological procedures to the diagnosis of infectious diseases.

VDPAM 489. Issues in Food Safety.

(Cross-listed with AN S, HRI, FS HN). Cr. 1. S. *Prereq: Credit or enrollment in FS HN 101 or FS HN 272 or HRI 233; FS HN 419 or FS HN 420; FS HN 403*

Capstone seminar for the food safety minor. Case discussions and independent projects about safety issues in the food system from a multidisciplinary perspective.

VDPAM 490. Independent Study.

Cr. 1-5. Repeatable. F.S.SS. *Prereq: Permission of department chair*

VDPAM 491. Advanced Ruminant Nutrition.

Cr. 3. S.

Focus on dairy nutrition from the calf to the adult, lactating cow. Balancing rations for dairy operations. Introduction to different feedstuffs and forage varieties to determine those that are best suited to bovine diets. This course is held the week immediately prior to the start of the spring semester. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred. Non-major graduate credit.

VDPAM 492. Orientation for International Experience.

Cr. 1. S. *Prereq: Classification in veterinary medicine*

Predeparture orientation for group study abroad. Cultural considerations for the study abroad experience and a conversational language introduction. Out of class work will be assigned. Offered on a satisfactory-fail basis only.

VDPAM 494. Advanced Dairy Production Medicine.

Cr. 2. S. *Prereq: VDPAM 484 or permission of instructor*

Advanced course in investigating dairy herd problems relating to milk quality or nutrition. Milk quality and nutrition troubleshooting will be taught through the combination of lecture and on-farm investigations. Students will combine lecture knowledge, data acquired from on-farm investigations and record analysis to generate management plans. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred. Non-major graduate credit.

VDPAM 495. Advanced Small Ruminant Production Medicine.

Cr. 2. F.S. *Prereq: VDPAM 486, fourth year classification in veterinary medicine, or permission of instructor*

Two week clinical rotation in small ruminant production medicine. Field trips (including overnight stays) will be incorporated when possible. Topics to be covered include small ruminant industries (milk, meat, and fiber), milk quality, nutrition, reproduction, and disease management of small ruminants. Biosecurity policies require documentation of your presence in the USA 5 days immediately prior to the start of class if international travel has occurred.

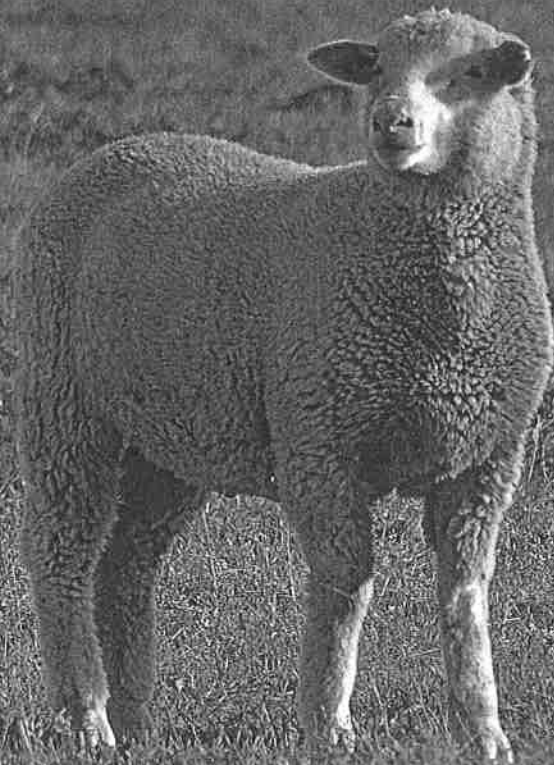
VDPAM 496. International Preceptorship.

(Dual-listed with 596). Cr. 1-12. Repeatable. F.S.SS. *Prereq: Second-year classification in veterinary medicine*

International Preceptorships and Study Abroad Group programs. This course will provide opportunities for students to be involved in applied clinical, production, and/or research experiences in international locations. The course consists of 40 hour per week experiential learning opportunities. Offered on a satisfactory-fail basis only.

IOWA STATE UNIVERSITY
College of Veterinary Medicine

Veterinary Field Services



ISU Veterinary Field Services
2412 Lloyd Veterinary Medicine
Ames, IA 50011
(515) 294-7595
[vetmed.iastate.edu/vdpam/
veterinary-field-services](http://vetmed.iastate.edu/vdpam/veterinary-field-services)



IOWA STATE UNIVERSITY
College of Veterinary Medicine

Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Office of Equal Opportunity, 3350 Beardshaar Hall, (515) 294-7612.

10/02/13-200

*Improving animal health
through service and education*



The College of Veterinary Medicine at Iowa State University offers farm animal (food and fiber) Veterinary Field Services to producers in the Ames area. We are a fully equipped ambulatory practice consisting of eight clinicians who provide individual and herd health services for beef, dairy, swine, sheep, goats, alpacas and llamas.

The field service unit was initiated to address the high interest in farm animal medicine among our veterinary students. This service provides our students with additional training in clinical cases and provides high-quality, on-farm services to producers in the Ames area.

For more information or to schedule a visit, please call (515) 294-7595.

Our Services

Year-round, daily and 24-hour emergency care

Examples of medical/surgical services available:

- > Diagnosis and treatment of individual animal diseases
- > Vaccination and deworming programs
- > Castration, dehorning and routine production procedures
- > Herd-based health programs
- > Herd performance evaluation and consultation
- > Breeding soundness examinations
- > Fetal sexing via ultrasound
- > Milking system analysis
- > Records analysis
- > Nutritional consultation
- > Routine on-farm surgeries (displaced abomasum, c-section, prolapse)



WHO: D-PIKE is perfect for students who will begin their first, second or third year of veterinary college in the fall. Preference will be given to veterinary students, but undergraduate and graduate students in related fields such as animal science or agricultural business will be considered if space is available.

No prior dairy experience necessary.

WHEN: The program begins in May and ends in July.

WHAT: The 10-week program will consist of rotations through a large dairy, a medium-sized dairy, a small dairy, a dairy education center or a dairy-focused veterinary practice.

WHERE: The dairy experience will be in northeast Iowa.

COMPENSATION: Food and mileage reimbursement payments average \$352 every two weeks. Housing is provided at a value of approximately \$400 per month.

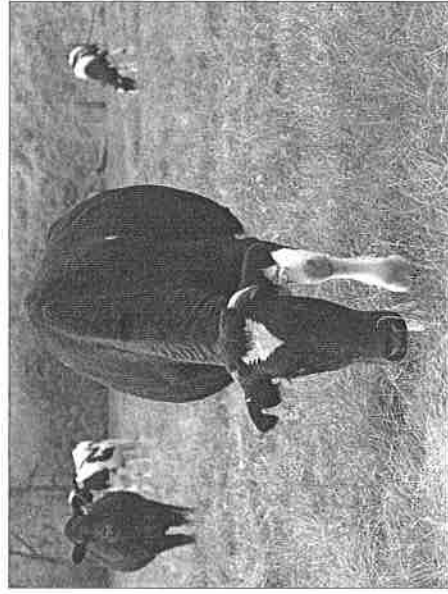
HOW: Applications can be picked up in the Office of Academic and Student Affairs (Rm. 2270, Veterinary Medicine).

Return applications to:

Dr. Bruce Leuschen
Food Supply Veterinary Medicine
2412 Lloyd Veterinary Medical Center
College of Veterinary Medicine
Iowa State University
Ames, IA 50011
(515) 294-5528
(leuschen@iastate.edu)

HURRY!

Explore Your Opportunities with D-PIKE



Sponsors:



Pfizer Animal Health



IOWA STATE UNIVERSITY
College of Veterinary Medicine

www.vetmed.iastate.edu

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Introducing...

D-PIKE

IOWA STATE UNIVERSITY
College of Veterinary Medicine

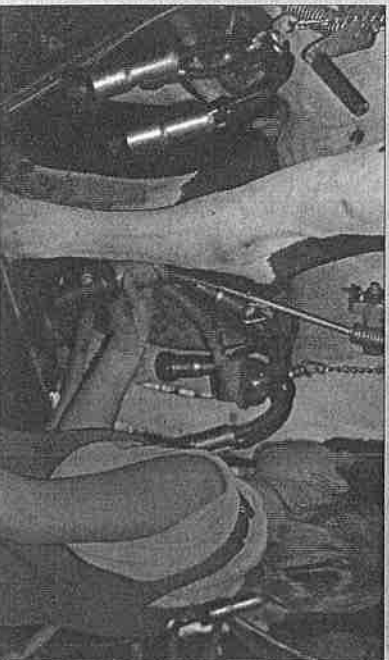
Dairy Production Immersive Knowledge Experience . . .

a unique and productive way to spend the summer from the College of Veterinary Medicine at Iowa State University

If you are interested in mixed animal, food animal, or dairy-focused veterinary practice, or are interested in exploring your options, consider the D-PIKE summer program. D-PIKE is an opportunity to gain practical, **hands-on experience** and an inside look at production animal medicine.

FOOD SUPPLY MEDICINE: A Growing Need

The findings from multiple national surveys indicate the demand for food supply veterinarians will continue to grow well into the future. The Iowa Veterinary Medical Association estimates that the state of Iowa alone will need 25 new food supply veterinarians each year for its growing livestock industry. Production experience will be invaluable for those veterinarians who want to work in the dairy industry.



Explore Your Opportunities with

D-PIKE

WHAT: A 10-week, hands-on summer experience that immerses you in commercial dairy production systems and associated agribusinesses.

- **Live** in a learning community environment with other program participants. Work together on **on-line courses**. Develop an electronic portfolio of your experiences to demonstrate value to employers.

- **Participate** in lectures, seminars and discussions covering selected topics on dairy production led by content experts from the industry, academia and government.

- **Work** in different areas of the production systems, including three different sized dairies (small, medium, and large) and a veterinary clinic. The typical experience will include:
 - Milking parlor management
 - Udder health
 - Breeding and fertility
 - Fresh cow management
 - Nutrition and feeding
 - Environmental and business management
 - Shadowing a dairy veterinarian

This type of **experience is highly valued** by future employers and will be invaluable in your veterinary medicine education.

Hear what others have to say...

"D-PIKE is a unique and valuable opportunity for hands-on experience in dairy production. As dairies increase in size, there are new challenges that many students have never experienced, such as developing and monitoring fresh cow programs and designing and implementing biosecurity measures. While working in the dairies, students see the real-life management issues and why some of the veterinarian's suggestions may not be implemented. At Pfizer Animal Health, we touted D-PIKE as one of the great innovative ideas at the veterinary schools in 2006."

Gary Neubauer, DVM

Pfizer Animal Health

"The Dairy Production Immersive Knowledge Experience program has exposed me to the dairy industry, a facet of Iowa agriculture of which I had no previous experience. As a future veterinarian, a working knowledge of how day-to-day operations affect animal health will be vital to my success in the field. The hands-on experience I've gained during the program, from daily chores to vaccination programs to herd and reproductive health to sick cow treatment, are all important parts of my education which cannot be gained in the traditional classroom setting."

Colin Yoder

Iowa State University 2011

2007 D-Pike Participant

"When D-PIKE students spent time at our veterinary practice, they saw the important role the veterinarian plays in the day-to-day management of a dairy farm. We also provided opportunities for the students to learn about dairy medicine and production by working with our clients and their herds."

Dr. Pat Boe

South Winn Vet Clinic

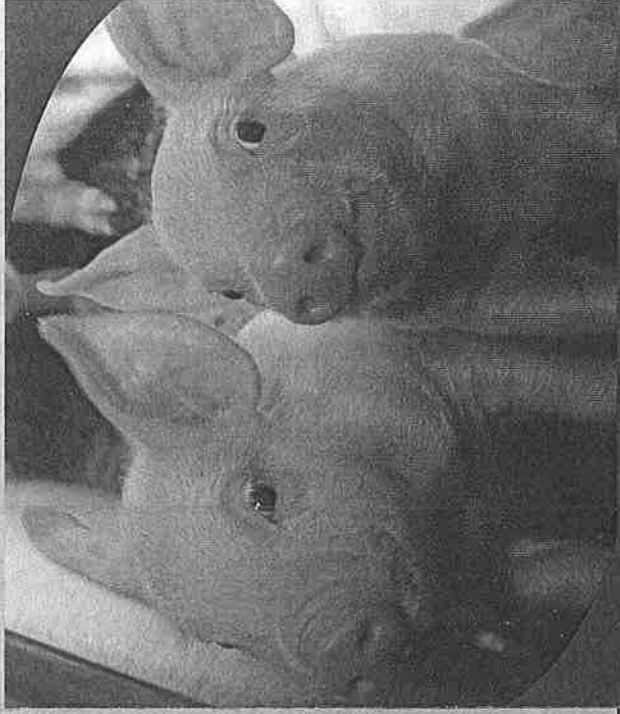
Oscan, Iowa

SMEC

SWINE MEDICINE
EDUCATION CENTER

Center for Excellence in Swine Veterinary Medicine Education

The center is dedicated to providing veterinary students and practicing veterinarians from across the United States and around the world with extensive hands-on experiences and education in swine health and production.



IOWA STATE UNIVERSITY
College of Veterinary Medicine

Mission Statement

The mission of the Swine Medicine Education Center at Iowa State University is to collect and synthesize the best practices for clinical swine medicine and to translate and disseminate those practices to stakeholders who can apply them to improve swine health and welfare, ensure pork safety, maintain sustainability and conserve the resources used for pork production.

2412 Lloyd Veterinary Medicine Center
1600 S 116th St
Ames, IA 50011
515-294-7692
Fax 515-294-1072
isusmec@iastate.edu

www.vetmed.iastate.edu/SMEC

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Getting Involved

- Enroll in farm-based and online training offerings
 - Financial support
 - Utilize our services
 - Help fund student scholarships
- www.vetmed.iastate.edu/SMEC

For More Information

Dr. Locke Karriker, Director

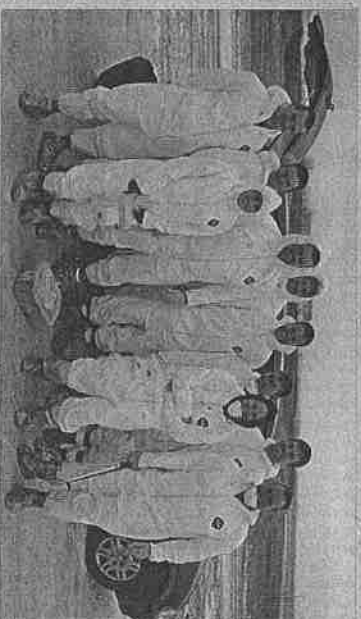
phone: 515-294-7692

email: isusmec@iastate.edu

Swine Medicine Education Center at the ISU College of Veterinary Medicine

Center for excellence in swine veterinary medical education

- **AT THE FARM:** Evidence-based clinical medicine training courses for veterinary students and veterinarians.
- **ON THE WEB:** Live and self-paced training on evidence-based clinical medicine topics accessible anywhere in the world, anytime of day.
- **ACCESS:** The latest research and diagnostic trends from a broad range of scientists, practitioners and clinicians.
- **EVIDENCE:** Support for diagnostic and treatment decisions, collected, evaluated and translated for practice.
- **SYNTHESIS:** New diagnostic, clinical medicine and stakeholder training techniques.



Training Modules:

- SMEC 480 - Swine Production Medicine Clinical Rotation
 - SMEC 481 - Swine Production Management and Consultation
 - SMEC 401 - PIGLAB, Antemortem and postmortem sample collection and herd evaluation
 - SMEC 401 - Introduction to Swine Population Pharmacology
 - SMEC 100 - Swine Medicine Backgrounder
 - SMEC 403 - Board Preparation Practice Exam
- Custom Services:**
- Field Research
 - Search and Summary of Current Evidence for Practice
 - Other services available upon request

The Swine Medicine Education Center is an innovative collaborative effort between Iowa State University College of Veterinary Medicine (ISU CVM) and Audubon-Manning Veterinary Clinic (AMVC). Financial support is provided by a broad range of industry stakeholders. AMVC provides farm access, on-site student housing, classroom facilities and an instructor. ISU CVM provides curriculum development and management, on-line course management, research on instructional strategies, accredited degree programs and administrative structure.

WHO: B-PIKE is perfect for students who will be in their first, second or third year of veterinary college in the fall. Preference will be given to veterinary students, but undergraduate and graduate students in related fields such as animal science or agricultural business will be considered if space is available.

WHEN: The program begins in May and ends in July.

WHERE: The beef experience will be centered at the Great Plains Veterinary Educational Center in Clay Center, Nebraska.

WHAT: The 10-week program will consist of rotations through one of three large commercial feed yards, the GPVEC facility, and beef-centered veterinary practices.

COMPENSATION: Food and mileage reimbursement payments average \$352 every two weeks. Housing is provided at a value of approximately \$400 per month.

HOW: Applications can be picked up in the Office of Academic and Student Affairs (Rm. 2270, Veterinary Medicine).

Return applications to:

Dr. Terry Engelken
Food Supply Veterinary Medicine
2412 Lloyd Veterinary Medical Center
College of Veterinary Medicine
Iowa State University
Ames, IA 50011
(515) 294-5528
(engelken@iastate.edu)

HURRY!

Class size is limited to eight students

Explore Your Opportunities with

B-PIKE

Participating Feed Yards:

- Gottsch Cattle Company
- Red Cloud, Nebraska
 - Juniata, Nebraska

Circle 5 Feeders

- Henderson, Nebraska
- Fairmont, Nebraska

Consulting Veterinarians:

- Del Miles, DVM, MS
- Greeley, Colorado
- Jess Hinrichs, DVM
- Sutton, Nebraska

Sponsors:



IOWA STATE UNIVERSITY
College of Veterinary Medicine

www.vetmed.iastate.edu

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IOWA STATE UNIVERSITY
College of Veterinary Medicine

INTRODUCING...
Introducing...

B-PIKE

Beef Production Immersive Knowledge Experience . . .

a unique and productive way to spend the summer from the College of Veterinary Medicine at Iowa State University

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FOOD SUPPLY MEDICINE A Growing Need

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Explore Your Opportunities with

B-PIKE

WHAT: A 10-week, hands-on summer experience that immerses you in feedlot production systems and associated agribusinesses.

- Live in a learning community environment with other program participants. Work together on **on-line courses**. Develop an electronic portfolio of your experiences to demonstrate value to employers.
 - Participate in lectures, seminars and discussions covering selected topics on beef production led by content experts from the industry, academia and government.
 - Work in different areas of the production systems, including:
 - Receiving of new cattle
 - Identification of sick calves
 - Processing protocols
 - Hospital management
 - Feed mill operation
 - Feeding and feed bunk management
 - Necropsy evaluation
 - Environmental and business management
- This type of experience is highly valued by future employers and will be invaluable in your veterinary medicine education.

