

## COURSE SYLLABUS

### **POPULATION HEALTH AND PRODUCTION**

CVM 7025

2 Credit Hours / 2 Week Course

**Course Director:** Peggy Schmidt, DVM, MS, DACVPM; Associate Professor, Production Medicine & Epidemiology

**Office Location:** BVCC 238

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**Course Instructors:** Dr. Peggy Schmidt, Prof. Suzie Kovacs, Dr. Musafiri Karama

#### **Course Time and Location:**

Class meeting location will be in BVCC 244. Class will meet for various amounts of time between 8:00 a.m. to 12:00 p.m. Monday through Friday to facilitate instructor contact time and small group study time. Nights and weekends will not contain scheduled activities, but may need to be used to complete course assignments.

#### **Course Description:** (Course Purpose, aims/goals)

This course will be administered by on-campus Western University faculty and will include student derived off-campus field trips. On-campus activities will involve in depth discussions of population health and production topics including, but not limited to; biosecurity, preventive medicine programs, disease monitoring and surveillance, disease eradication and/or control in a population, evaluation and application of diagnostic tests in a herd, production record analysis as a diagnostic tool, management related health issues in populations, disease dynamics in a population, disease outbreak investigation, cost/benefit analysis of disease interventions, and timely topics or current events impacting population health and production. Each student will prepare a defensible proposal for a preventive medicine or herd health program in an animal population of their choice. These populations could include a livestock herd or flock, a stable, a kennel, a cattery, an animal shelter, a pet store, a zoo, an aquarium, etc. Students will present their proposal in written format to faculty for critical evaluation.

This 2 credit course was developed using the Model Curriculum developed by the American College of Veterinary Preventive Medicine as recommended by the AVMA, December 2003, and a Curriculum for Food Animal Veterinarians in the 21<sup>st</sup> Century as recommended by the Food Animal Production Medicine Consortium, May 1991. Additional resources utilized for development include position statements from the American Association of Food Hygiene Veterinarians, American Association of Public Health Veterinarians, and the Association for Veterinary Epidemiology and Preventive Medicine, as well as the AVMA New COE Draft Outcomes Statement Population Medicine Domain recommended, July 2004.

#### **Learning Objectives:** (Supporting The Course Purpose)

At the end of this course, students are expected to be able to:

1. Comprehend basic epidemiological concepts including; case definition, counts and rates, measures of frequency, measures of location and spread, assessment of risk, hypothesis testing, and association versus causation.
2. Recognize major types of epidemiological studies and their strengths, weaknesses and inherent biases.
3. Explain the steps involved in and tools available for disease monitoring and surveillance in a population. Understand the limitations of such programs and the necessary adjustments to programs given fluctuation in disease prevalence.
4. Compare the use of diagnostic tests in individual animal and population health diagnostics. Evaluate the performance of a diagnostic test in determining the presence or absence of disease in a population. Understand the application of diagnostic testing in a population in regards to single or multiple tests.
5. Determine the costs and benefits associated with disease thresholds in a production population. Understand the feasibility and economics of disease eradication programs in stable and changing populations. Compare and contrast control versus eradication programs for animal populations.
6. Perform a disease outbreak investigation within a population identifying important associations and risk factors and implementation of appropriate intervention and prevention strategies.
7. Inspect and evaluate an animal population for animal health, sanitation and general biosecurity problems.
8. Develop a population-based nutritional program for a species including methods to solve a population-based nutritional problem.
9. Design and implement biosecurity procedures for an animal population. Describe the function and purpose of specific biosecurity measures as they relate to population health and production.
10. Use production/performance records of a population for diagnosis of health or production problems in a

population. Utilize such records to determine points of interventions and develop intervention strategies to reduce the impact of a disease on production/performance.

11. Understand the components of a thorough preventive medicine program for a production facility or animal population. Design such a program for a specific population taking into consideration location, management, and economic constraints for that population.
12. Explore the implications of proposed and existing local, state, federal, and international regulations as well as public opinion on population health and production.

### **Course Policies and Procedures:** (Attendance/Dress Code etc. – specific to course)

**Attendance** – Attendance and participation in discussion is required in order to optimize the educational benefit for all students. An excused absence may be granted in the case of contagious illness or family emergency. Notification of absence must be directed to the course director through personal communication, voice mail or email as early as possible. Cell phone contact is the preferred method if <24 hours notice; email for >24 hour notice.

**Professional behavior** - Professional behavior is conducive to an effective learning environment and is expected of all course participants. Professional behavior includes but is not limited to tolerance of other's beliefs and opinions, arriving on time, and being prepared for class discussions.

**Honor code** - In compliance with the University and College requirements and recommendations.

**Students with special needs** – Please address any special needs or special accommodations with the course director beginning of the semester or as soon as you become aware. Students seeking accommodations based on disabilities should contact the Center for Disability Issues & the Health Professions (CDIHP) office (909 469-5380) to coordinate reasonable accommodations for students with documented disabilities *prior to the beginning of the course*. Retroactive disabilities related accommodations will not be granted.

**Course work:** The first day of class will convene at 8:00am Monday in BVCC 244. The course syllabus will be discussed and the course schedule finalized. During week 1, all students are required to select and visit their population of choice to initiate the preventive medicine performance product.

**Assessment:** The preventive medicine performance product is due by 5pm on the last Friday of the course in both paper and electronic form. Late submissions are unacceptable and will result in failure of the course, irregardless of the quality of the work. Summative examination will occur at the end of the course and must be completed prior to the start of the next course.

### **EQUIPMENT/CLOTHING**

During field trips, appropriate clothing should be worn. For food animal production facilities, this will include coveralls and rubber boots. For other production facilities, students should consider clothing which is appropriate for the surroundings. Wearing loose jewelry, such as necklaces and dangling earrings, is discouraged during field trips.

### **Assessment:** (Grades/Rubric/Exam)

Assessment for this course is a weighted combination of technical and non-technical competencies.

**Technical competencies:** will be evaluated through a preventive medicine performance product and a summative exam. The preventive medicine performance product consists of a written herd health or preventive medicine program for a population of the student's choice. Assessment of the student's appropriate use of knowledge will occur as described in the included rubric. The summative exam will consist of questions consistent with expected production medicine and population health knowledge assessment on the North American Veterinary Licensing Exam (NAVLE).

**Non-technical competencies:** will be evaluated through the preventive medicine performance product and course director evaluation of professional attitude, behavior, collaboration and interaction during the course. Assessment categories and expectations are described in the included rubric.

Course graded events will be weighted as follows to determine the course letter grade.

- |   |       |
|---|-------|
| • Preventive Medicine Performance Product | 50.0% |
| • Summative Exam                          | 40.0% |
| • Course Director and Peer Evaluation     | 10.0% |

### **GRADING SCALE**

- |           |  |
|-----------|--|
| A (90+)   | A student with work at a professional advanced level with evidence of understanding of all course material.  |
| B (80-89) | A student who has achieved a high standard of understanding in some topics, although in some areas and issues have moderate understanding  |
| C (70-79) | A student who has achieved a moderate level of understanding in the majority of topics   |
| D (65-69) | A student who has achieved moderate levels of understanding in few topics, in some areas the student has achieved only rudimentary understanding   |
| U (<65)   | A student who has failed to demonstrate an understanding of the topics or is so poor in some areas as to be "dangerous" to others if providing advice on population health or production medicine. |

## **Resources:**

Course materials and required readings will be available on Blackboard. Other recommended resources include:

### Texts

- Epidemiology (2004), Leon Gordis
- Animal Disease Surveillance and Survey Systems, Methods and Applications (2003), MD Salman
- Veterinary epidemiology : principles and methods (1987), Wayne Martin
- Veterinary Epidemiologic Research (2004), Ian Dohoo
- Veterinary Clinical Epidemiology : a problem-oriented approach (1995), Ronald Smith
- Veterinary Epidemiology (2003), Margaret R Slater
- Veterinary Epidemiology (2005), Michael Thrusfield
- Herd health : food animal production medicine (2001), OM Radostits
- Beef production and management decisions (2003), Thomas Field
- Multi-site pig production (2000), DL Harris
- Diseases of Swine (1999), Barbara Straw
- Poultry health and management : chicken, turkey, ducks, geese, and quail (2000), David Sainsbury
- Modern livestock & poultry production (2004), James Gillespie
- Production of aquatic animals : crustaceans, molluscs, amphibians, and reptiles (1991), Colin Nash
- Shelter medicine for veterinarians and staff (2004), Lila Miller

### Websites

- Veterinary Epidemiology – An Introduction (on-line text)  
(<http://www.vetschools.co.uk/EpiVetNet/epidivision/Pfeiffer/files/Epinotes.pdf>)
- NAHMS - National Animal Health Monitoring System (<http://www.aphis.usda.gov/vs/ceah/ncahs/nahms/index.htm>)
- British Medical Journal series "How to Read a Paper" (<http://bmj.bmjournals.com/collections/read.shtml>)
- EpiInfo version 3.3 – free epidemiological/statistical software (<http://www.cdc.gov/epiinfo/epiinfo.htm>)
- eMedline Introductory Biostatistics (<http://www.emedicine.com/emerg/topic758.htm>)

**Appendices:** (Detailed Schedules/Assessment rubrics/University, College Information/Forms/Surveys etc.)

**(PLEASE SEE ATTACHED PAGES)**

## Rubric For Preventive Medicine Performance Product

Name of person evaluated:

Name of evaluator:

Date:

Level of demonstration of understanding	Professional (10 points)	Competent (8 points)	Marginal (6 points)	Unacceptable (0 points)
<b>Content</b>				
<b>Identification of production, husbandry, and/or management methods</b>	Demonstrates understanding basic and more specialized production, husbandry, and/or management methods and can explain the reasoning behind them. Addresses why a recommended method is suitable in this population along with a brief discussion of why alternative approaches may not be as suitable.	Demonstrates understanding basic production, husbandry, and/or management methods and can explain the reasoning behind them.	Has included the basic methods but fails to explain the reasoning behind them.	No demonstration of an understanding of even basic production.
<b>Identification of infectious diseases (bacterial, fungal, parasitic, and viral) of concern and their prevention and treatment measures</b>	Demonstrates understanding major infectious diseases and can explain their importance in the population. Addresses why the recommended treatment and prevention measures are preferable and briefly discusses why alternatives are not as suitable in this situation.	Demonstrates understanding major diseases and makes recommendations for treatment and prevention measures.	Has included the major diseases but fails to identify both treatment and prevention measures.	No demonstration of an understanding of even major diseases and their treatment and prevention measures.
<b>Identification of biosecurity measures</b>	Demonstrates understanding basic and advanced biosecurity measures and can explain their importance in the population. Addresses why the recommended measures are preferable and briefly discusses why alternatives are not as suitable in this situation.	Demonstrates understanding basic biosecurity measures and makes recommendations for preferred biosecurity measures.	Has included the basic biosecurity measures but fails to identify the importance of those measures in the population.	No demonstration of an understanding of even basic biosecurity measures.
<b>Identification of disease monitoring and surveillance programs</b>	Demonstrates knowledge of disease control programs. Recommends disease surveillance programs for diseases of importance in the population. Understands the limitations of such programs and the necessary adjustments to programs given fluctuation in disease prevalence.	Demonstrates knowledge of disease control programs. Recommends disease surveillance programs for diseases of importance in the population.	Demonstrates knowledge of disease control programs.	Unable to demonstrate knowledge of disease control programs.

	<b>Professional (5 points)</b>	<b>Competent (4 points)</b>	<b>Marginal (3 points)</b>	<b>Unacceptable (0 points)</b>
<b>Presentation</b>				
<b>Critical thinking</b>	Demonstration of a clear line of thought, through clearly structured and documented recommendations and reasoning for those recommendations.	Reasonable recommendations provided. However reasoning not always clear or documented.	Vague recommendations, poorly thought out, recommendations only partly correct in fact.	No demonstration of critical thinking, recommendations are false or incorrect
<b>Organization</b>	Information presented in logical sequence which client can follow. Organization allows for immediate access to specific information without reading entire document.	Student presents information in logical sequence which client can follow. Difficult to access specific information without reading much of document.	Client has difficulty understanding information because interruptions in logical sequence.	Client cannot understand information because there is no sequence of information.
<b>Written communication</b>	Conveys the ideas and recommendations discussed in a succinct and clear manner.	Conveys the ideas and recommendations clearly most of the time.	Able to convey idea or recommendation clearly most of the time. Unable to clearly discern recommendations occasionally.	Unable to convey the idea or recommendation clearly. Thoughts seem muddled.
<b>Use of terminology</b>	Correctly use the terminology at all times. Also, recognizes particular nuances that may sometimes be confusing. The use of terminology enhances the arguments as it makes discussions clear.	Able to understand the terminology and use correctly all or overwhelmingly most times.	Aware of the terminology, however, frequently fails to understand the terminology and therefore, incorrectly uses the terminology often. However the argument being advanced is still reasonable clear.	Either unaware of the terminology and its use is not included in the paper, or consistently uses terminology incorrectly to the point that the argument is not clear
<b>Grammar and spelling</b>	Grammar is exemplary. No spelling errors. Formatting of document makes it user friendly and easy to read.	Minimal grammatical or spelling errors. Formatting of document makes it user friendly and easy to read.	Few to moderate grammatical or spelling errors. Formatting of document does not facilitate its usefulness.	Numerous grammatical or spelling errors. Formatting of document creates a barrier for its use.