1 Course Details

1.1 Calendar Description

The course is the first of two comprehensive and integrated courses that will span the first two phases of the DVM program. Both courses are intended to establish the foundation for, and contribute to the students' achievement of selected DVM 2000 elements of competency in the context of the principles of health management. The primary emphasis of this component is to establish the historical perspective and basic tools required for health promotion and disease prevention.

Co-Requisite(s): All Phase 1 courses.

1.2 Course Description

Administered by the Department of Population Medicine.

The course will be delivered as a series of industry and discipline blocks. Each species block will contain lectures designed to describe the structure and goals of each industry. Students will be introduced to current productivity, economic or disease issues important to the industry in the lectures. The lab sessions will include the use of a clinical case(s) or research paper(s) structured around the principal areas of health management. Discipline blocks will similarly reinforce the principles of health management as well as supplying students with a toolkit of knowledge and techniques.

To achieve the learning objectives, students will be provided with a variety of learning experiences (lectures, laboratories, and computer based resources). The various industries and disciplines will be presented and discussed in such a way that students will be exposed to the breadth of knowledge and the opportunities for career development. Greater depth will be presented in subsequent courses in the Health Management series.

Health Management: Definition

Health management is the promotion of health and prevention of disease in animals within the economic/business framework of the animal owner/industry, while addressing the issues of animal welfare, human safety and environmental impact.

Health Management: Principles
1. Promote optimal health.
3. Promote animal welfare.
4. Promote human and food safety.
5. Consider potential environmental impact.

Health Management: Delivery

Health Management is a dynamic process in which selected management areas of importance to the animals, the industry and the animal owner are identified and monitored. Decisions are made and plans are developed and implemented. The outcomes are then measured and evaluated. This process is called the Health Management Cycle.

1.3 Timetable

Timetable is subject to change. Please see the EnCampus Portal for the latest class scheduling information.

1.4 Final Exam

Exam time and location is subject to change. Please see the EnCampus Portal for the exam schedule information.

2 Instructional Support

For questions regarding academic consideration, continuation of study, academic misconduct, safety, confidentiality, and experiential learning involving use of animals, please refer to the appropriate sections in the introduction of the Phase Information on the web site.

2.1 Instructor(s)

Todd Duffield
Email: tduffiel@uoguelph.ca
Telephone: +1-519-824-4120 x54057
Office: OVCS 2509A
Evidence-Based Medicine, Decision Making and Clinical Epidemiology

Population Medicine

Cathy Gartley
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Telephone: +1-519-824-4120 x56304
Office: OVCS 2544
Companion Animals

Population Medicine

Jessica Gordon
Email: jgordo04@uoguelph.ca
Telephone: +1-519-824-4120 x58813
Office: OVCS 2538
Beef Cattle

Population Medicine

**Michele Guerin**
Email: mguerin@uoguelph.ca
Telephone: +1-519-824-4120 x54486
Office: CLRE 203

**Poultry**

Population Medicine

**Derek Haley**
Email: dhaley@uoguelph.ca
Telephone: +1-519-824-4120 x53677
Office: OVCS 2539

**Applied Ethology**

Population Medicine

**Claire Jardine**
Email: cjardi01@uoguelph.ca
Telephone: +1-519-824-4120 x54656
Office: PAHL 4842

**Ecosystem Health**

Pathobiology

**David Kelton**
Email: dkelton@uoguelph.ca
Telephone: +1-519-824-4120 x54808
Office: OVCS 2537

**Evidence Based Veterinary Medicine**

Population Medicine

**Daniel Kenney**
Email: dkenney@uoguelph.ca
Telephone: +1-519-824-4120 x54030
Office: OVCHSC 1417

**Equine**

Clinical Studies

**Kerry Lissemore**
Email: klissemo@uoguelph.ca
Telephone: +1-519-824-4120 x54423
Office: 203A McNabb House

**General Health Management and Dairy Cattle**

**Lee Niel**
Email: niell@uoguelph.ca
2.2 Instructional Support Team

<table>
<thead>
<tr>
<th>Course Co-ordinator</th>
<th>Email</th>
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<tbody>
<tr>
<td>Todd Duffield</td>
<td><a href="mailto:tduffiel@uoguelph.ca">tduffiel@uoguelph.ca</a></td>
<td>+1-519-824-4120 x54057</td>
<td>OVCS 2509A</td>
</tr>
<tr>
<td>Kerry Lissemore</td>
<td><a href="mailto:klisemo@uoguelph.ca">klisemo@uoguelph.ca</a></td>
<td></td>
<td>203A McNabb House</td>
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3 Learning Resources

Course notes will be posted to the CourseLink course web site. In addition to posted notes, there are resources posted for each species. Students are not responsible for all material posted in the Species section. However, material relating to the species timelines, breed information and glossary of terms will be used on both the midterms and final exam.
Clinical Field Experiences:

Students will have an optional opportunity to accompany field service clinicians during a final year core or elective health management rotation.

Self-study Problem Sets:

Two question and answer modules, covering descriptive and clinical epidemiology, will be posted to the course web site to coincide with the lecture material.

3.1 Recommended Resource(s)


4 Learning Outcomes

The overall goal of this course is to present the students with an integrated approach to the disciplines of medicine, epidemiology, ethology, public health and animal husbandry in order to achieve the stated learning objectives. This course will also provide the foundation for more in-depth coverage of these topics in subsequent courses (Phase 2-Health Management II and Phase 3- Health Management III).

Health management programs strive to optimize health and solve disease problems in individuals and populations. This requires veterinarians to have skills in finding and critically appraising information, problem solving, and calculating and interpreting quantitative measures. To provide effective health management services veterinarians must also know and understand the structure, function and goals of the various animal industries.

The learning objectives for Health Management are expressed in five (5) major categories that are covered in the Health Management courses in Phases 1, 2 and 3.

The five major categories are as follows:

1. Animal Industries
2. Public Health
3. Animal Welfare
4. Animal Behaviour
5. Evidence-based Decision Making in the Promotion of Health and Prevention of Disease (Evidence-based veterinary medicine serves as the basis for effective decision making in the promotion of health and prevention of disease).
4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Define basic industry terminology and describe the relative importance of each industry in Canada with respect to size and veterinary engagement (Animal Industries).
2. Identify common breeds of animals within common animal industries (Animal Industries).
3. Describe the production cycle for common animal industries from birth until death (Animal Industries).
4. Describe the role of the veterinarian and how it differs between different species groups (Animal Industries).
5. Explain the important issues relating to health management across different species groups (Animal Industries).
7. Calculate some common measures of assessing performance for the various animal industries (Animal Industries).
8. Identify and describe the scope, structure and function of the relevant animal industries, including production norms and the major inputs and outputs (Animal Industries).
9. Explain the interrelationships between veterinary medicine, human health and well-being (Public Health).
10. Identify the main categories of human health risks from animals (Public Health).
11. Explain how use of veterinary drugs could adversely affect human health (Public Health).
12. Explain the main principles of zoonotic disease prevention and control (Public Health).
13. Identify important national and international veterinary public health organizations (Public Health).
14. Describe the responsibilities of veterinarians with respect to reportable diseases (Public Health).
15. Describe the rationale and main principles of risk analysis and HACCP (Public Health).
16. Understand how behavioural management, behavioural needs and domestication affect the welfare of animals (Animal Welfare).
17. List and describe the importance of animal behaviour as it relates to health management, animal welfare and the veterinary profession (Animal Behaviour).
18. Identify and describe various factors that cause and influence the behaviour of individuals and groups of animals (4 why’s, motivation, learning, physiology, domestication) (Animal Behaviour).
19. Explain the significance of the *Principles of Health Management* as they relate to the various animal industry groups (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).
20. Define the term ‘evidence-based veterinary medicine’ and explain the strategies involved in the practice of evidence-based medicine (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).
21. Critically appraise scientific literature to weigh evidence on opposing views (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).
22. Compare and contrast the approaches to making a diagnosis (Evidence-Based Decision
23. Describe the sequence of steps in making a diagnosis using the hypothetico-deductive method (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).

24. Describe the historical context for the development of epidemiology and health management within veterinary medicine (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).

25. Describe the *Health Management Cycle* and explain the significance of each component (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).

26. Describe the importance of host-agent-environment interactions for both the cause and prevention of disease (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).

27. Calculate incidence and prevalence of events in populations (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).

28. Calculate sensitivity, specificity, predictive values, kappa and likelihood ratios (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).

29. Explain the implications of using tests in combination (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).

30. Describe the effect of changing cut-points for tests with continuous data (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).

31. Explain the importance of tests and changing population prevalence to the diagnostic process (Evidence-Based Decision Making in the Promotion of Health and Prevention of Disease).

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### 5 Teaching and Learning Activities

#### 5.1 Lecture

**Topic(s):** Lecture 1: Introduction to Course and Health Management

Principle/Issue: General Principles

Instructor: Duffield

**Topic(s):** Lecture 2: Applied Ethology

Principle/Issue: Ethology and veterinary medicine

Instructor: Haley

**Topic(s):** Lecture 3: Applied Ethology

Principle/Issue: Explaining behaviour

Instructor: Haley

**Topic(s):** Lecture 4: Applied Ethology

Principle/Issue: Physiology and behaviour
Instructor: Niel

**Topic(s):** Lecture 5: Applied Ethology
Principle/Issue: Domestication and learning theory

Instructor: Haley

**Topic(s):** Lecture 6: Applied Ethology
Principle/Issue: Motivation, and animal welfare

Instructor: Haley

**Topic(s):** Lecture 7: Evidence Based Veterinary Medicine
Principle/Issue: Introduction to Epidemiology: Historical Perspective

Instructor: Duffield

**Topic(s):** Lecture 8: Evidence Based Veterinary Medicine
Principle/Issue: Descriptive Epidemiology: Host, Agent, Environment

Instructor: Duffield

**Topic(s):** Lecture 9: Evidence Based Veterinary Medicine
Principle/Issue: Descriptive Epidemiology: Host, Agent, Environment

Instructor: Duffield

**Topic(s):** Lecture 10: Evidence Based Veterinary Medicine
Principle/Issue: Measuring Disease – Risk: Dichotomous variables

Instructor: Duffield

**Topic(s):** Lecture 11: Evidence Based Veterinary Medicine
Principle/Issue: Measuring Disease: Counts and Prevalence

Instructor: Duffield

**Topic(s):** Lecture 12: Evidence Based Veterinary Medicine
Principle/Issue: Measuring Performance: Continuous variables

Instructor: Lissemore

**Topic(s):** Lecture 13: Small Ruminant - Sheep
Principle/Issue: Industry/Role of Veterinarian

Instructor: Winder

**Topic(s):** Lecture 14: Small Ruminant - Goats
Principle/Issue: Industry/Role of Veterinarian
Instructor: Winder

**Topic(s):** Lecture 15: Small Ruminant - Case
Principle/Issue: Diagnostic Process/Rates
Instructor: Winder

**Topic(s):** Lecture 16: Swine Industry
Principle/Issue: Industry Overview
Instructor: O'Sullivan

**Topic(s):** Lecture 17: Swine Industry
Principle/Issue: Industry Overview
Instructor: O'Sullivan

**Topic(s):** Lecture 18: Swine Industry
Principle/Issue: Role of Veterinarian
Instructor: O'Sullivan

**Topic(s):** Lecture 19: Swine Industry - Case
Principle/Issue: Measuring Performance
Instructor: O'Sullivan

**Topic(s):** Lecture 20: Swine Industry - Case
Principle/Issue: Measuring Performance
Instructor: O'Sullivan

**Topic(s):** Lecture 21: Hot Topic #1
Principle/Issue: TBA

**Topic(s):** Lecture 22: Non-traditional companion animals and alternative livestock industries
Principle/Issue: Role of Veterinarian
Instructor: TBD

**Topic(s):** Lecture 23: Avian Industry - Poultry
Principle/Issue: Industry Overview
Instructor: Guerin

**Topic(s):** Lecture 24: Avian Industry - Poultry
Principle/Issue: Role of Veterinarian
Lecture 25: Lab Animals
Principle/Issue: Role of Veterinarian

Lecture 26: Ecosystem Health
Principle/Issue: Role of Veterinarian

Lecture 27: Ecosystem Health
Principle/Issue: Role of Veterinarian

Lecture 28: Equine Industry - Pleasure
Principle/Issue: Industry Overview

Lecture 29: Equine Industry - Competitive
Principle/Issue: Industry Overview

Lecture 30: Equine Industry
Principle/Issue: Role of the veterinarian

Lecture 31: Equine Industry
Principle/Issue: Role of the veterinarian

Lecture 32: Equine Industry - Case
Principle/Issue: Infectious Disease Control
Lecture 33: Beef Industry - Cow Calf
Topic(s): Principle/Issue: Industry Overview
Instructor: Gordon

Lecture 34: Beef Industry - Feedlot
Topic(s): Principle/Issue: Industry Overview
Instructor: Gordon

Lecture 35: Beef Industry - Case
Topic(s): Principle/Issue: Introduction/Discussion
Instructor: Gordon

Lecture 36: Beef Industry - Cow Calf
Topic(s): Principle/Issue: Role of Veterinarian
Instructor: Gordon

Lecture 37: Beef Industry - Feedlot
Topic(s): Principle/Issue: Role of Veterinarian
Instructor: Gordon

Lecture 38: Evidence Based Veterinary Medicine
Topic(s): Principle/Issue: Clinical Epidemiology: Diagnostic Process
Instructor: Duffield

Lecture 39: Evidence Based Veterinary Medicine
Topic(s): Principle/Issue: Clinical Epidemiology: Sensitivity and Specificity
Instructor: Duffield

Lecture 40: Evidence Based Veterinary Medicine
Topic(s): Principle/Issue: Clinical Epidemiology: Predictive Values
Instructor: Duffield

Lecture 41: Evidence Based Veterinary Medicine
Topic(s): Principle/Issue: Clinical Epidemiology: Post Test Probability
Instructor: Duffield

Lecture 42: Evidence Based Veterinary Medicine
Topic(s): Principle/Issue: Clinical Epidemiology: Agreement/Likelihood Ratios
Instructor: Duffield
Instructor: Duffield

**Topic(s):**
Lecture 43: Evidence Based Veterinary Medicine  
Principle/Issue: Introduction to Decision Making

Instructor: Kelton

**Topic(s):**
Lecture 44: Evidence Based Veterinary Medicine  
Principle/Issue: Critical Appraisal of the Scientific Literature

Instructor: Kelton

**Topic(s):**
Lecture 45: Evidence Based Veterinary Medicine  
Principle/Issue: Critical Appraisal of the Scientific Literature

Instructor: Kelton

**Topic(s):**
Lecture 46: Companion Animal  
Principle/Issue: Industry Overview

Instructor: Gartley

**Topic(s):**
Lecture 47: Companion Animal  
Principle/Issue: Industry Overview

Instructor: Gartley

**Topic(s):**
Lecture 48: Companion Animal  
Principle/Issue: Industry Overview

Instructor: Tait

**Topic(s):**
Lecture 49: Companion Animal  
Principle/Issue: Industry Overview

Instructor: Tait

**Topic(s):**
Lecture 50: Hot Topic #2  
Principle/Issue: TBA

**Topic(s):**
Lecture 51: Veterinary Public Health: Role of Veterinarian  
Principle/Issue: Private

Instructor: Sargeant

**Topic(s):**
Lecture 52: Veterinary Public Health: Role of Veterinarian  
Principle/Issue: Public
Instructor: Sargeant

**Topic(s):** Lecture 53: Veterinary Public Health: HACCP
Principle/Issue: Risk

Instructor: Sargeant

**Topic(s):** Lecture 54: Veterinary Public Health: Human Safety
Principle/Issue: Zoonoses

Instructor: Sargeant

**Topic(s):** Lecture 55: Veterinary Public Health: Human Safety
Principle/Issue: Residues

Instructor: Sargeant

**Topic(s):** Lecture 56: Dairy Industry
Principle/Issue: Industry Overview

Instructor: Lissemore

**Topic(s):** Lecture 57: Dairy Industry
Principle/Issue: Role of Veterinarian

Instructor: Lissemore

**Topic(s):** Lecture 58: Dairy Industry
Principle/Issue: Role of Veterinarian

Instructor: Lissemore

**Topic(s):** Lecture 59: Dairy Industry: Case
Principle/Issue: Tying it all together

Instructor: Lissemore

**Topic(s):** Lecture 60: Dairy Industry: Case
Principle/Issue: Tying it all together

Instructor: Lissemore
5.2 Lab

**Lab 1: Swine Industry: Paper (Host/Agent/Environment)**

**Topic(s):**
Principle/Issue: Descriptive Epidemiology

**Lab 2: Beef Industry: Case - Feedlot Respiratory Disease**

**Topic(s):**
Principle/Issue: Calculating Risk and Rates

**Lab 3: Companion Animal Industry – Critical Appraisal and Use of Tests**

**Topic(s):**
Principle/Issue: Evidence Based Veterinary Medicine

**Lab 4: Dairy Industry: Paper (Sensitivity/Specificity/ Predictive Values)**

**Topic(s):**
Principle/Issue: Clinical Epidemiology

5.3 Field Trip Schedule

**TUESDAY Oct. 23**

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**Arkell Poultry**  **Arkell Swine**  **Elora Dairy**  **Elora Beef**

**Elora Beef**  **Elora Dairy**  **Arkell Swine**  **Arkell Poultry**

**Arrive back at OVC**

**THURSDAY Oct. 25**

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**Elora Dairy**  **Elora Beef**  **Arkell Poultry**  **Arkell Swine**

**Elora Beef**  **Elora Dairy**  **Arkell Swine**  **Arkell Poultry**

**Arrive back at OVC**

6 Assessments

There will be two formative midterm examinations in this course worth 15% each and a final comprehensive exam worth 70%.

The final grade will be based on the weighted average of the midterms (30%) and the final exam (70%). Students who miss any of the midterms are required to provide the appropriate documentation for academic consideration to the Associate Dean - Students. Once academic consideration has been granted a decision will be made by the course coordinators, on a case-by-case basis, on how to deal with missed midterms.

A student who receives an overall failing grade in this course will be required to repeat Phase 1 of the DVM program.
6.1 Assessment Details

**Midterm 1 (15%)**
1 hour

Includes material from lectures 1-32, associated labs and relevant web resources.

**Midterm 2 (15%)**
1 hour

Includes material from lectures 33 – 55, associated labs and relevant web resources.

**Final Exam (70%)**
During College Final Exam period.

The final exam is comprehensive.

(i.e. covers material from all lectures, lab sessions and relevant web resources).

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7 University Statements

7.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

7.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The regulations and procedures for Academic Consideration are detailed in the Undergraduate Calendar.

7.3 Drop Date

Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for Dropping Courses are available in the Undergraduate Calendar.

7.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

7.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student
Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: www.uoguelph.ca/sas

7.6 Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University’s policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar.

7.7 Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

7.8 Resources

The Academic Calendars are the source of information about the University of Guelph’s procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.