

# POPULATION MEDICINE

The Department of Population Medicine is an international leader in discovering and disseminating knowledge to optimize the health of animal and human populations in their environments. We embrace a holistic definition of health that includes physical health, welfare, and productivity of animals and the physical, mental, and social well-being of humans. We help students build foundational knowledge and skills while fostering continuous self-directed and collaborative learning and discovery. We answer the call of society for advice and action in our areas of expertise.

MSc, PhD and DVSc degrees are offered in the following fields:

- Epidemiology (MSc, PhD)
- Theriogenology (MSc, DVSc)
- Health Management (MSc, DVSc)
- Public Health (MSc, PhD)

The Department also offers a Master of Public Health (MPH) (<https://calendar.uoguelph.ca/graduate-calendar/graduate-programs/public-health/>) program.

Our research mission is to discover and disseminate knowledge regarding the management of health and productivity of animal populations, the health of human populations, and the interrelationships of animals, humans, and the environment (i.e., One Health). In support of this mission, we rely on a variety of quantitative and qualitative methods and knowledge synthesis tools to conduct observational studies, clinical trials, simulation studies, and reviews of human and animal health research.

Our teaching/learning mission is to guide students as they obtain an essential knowledge base and develop the necessary communication, analytical and problem-solving skills to integrate and apply this knowledge; and to instill the appropriate attitudes and abilities required for life-long learning.

## Administrative Staff

### Chair

Todd Duffield (2536 Stewart Bldg., Ext. 54057)  
tduffiel@uoguelph.ca

### Graduate Program Coordinator, Admissions and Administration

David Renaud (Stewart Bldg., Ext. 54031)  
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### Graduate Program Coordinator, Exams

Basem Gohar (2538 Stewart Bldg.)  
bgohar@uoguelph.ca (<https://calendar.uoguelph.ca/graduate-calendar/graduate-programs/population-medicine/bgohar@uoguelph.ca>)

### Graduate Program Assistants

OVC Main Building Room 2657, Ext. 54743  
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### Administrative Assistant to the Chair and Faculty

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## Graduate Faculty

*This list may include Regular Graduate Faculty, Associated Graduate Faculty and/or Graduate Faculty from other universities.*

### Cathy A. Bauman

DVM, MPH, PhD Guelph - Associate Professor  
Graduate Faculty

### Olaf Berke

B.Sc., M.Sc. PhD Dortmund (Germany) - Associate Professor  
Graduate Faculty

### Korryn Bodner

B.A. M.A. PhD Toronto - Assistant Professor  
Graduate Faculty

### Michelle Caissie

B.Sc., DVM, D.V.Sc. Guelph - Assistant Professor  
Graduate Faculty

### Tracey S. Chenier

DVM, D.V.Sc. Guelph, Dipl. ACT - Associate Professor  
Graduate Faculty

### Katie M. Clow

B.Sc., DVM, PhD Guelph - Assistant Professor  
Graduate Faculty

### Jason B. Coe

DVM, PhD Guelph - Professor  
Graduate Faculty

### Rita Couto Serrenho

DVM, M.Sc. Lisbon (Portugal), D.V.Sc. Guelph - Assistant Professor  
Graduate Faculty

### Anne Deckert

DVM Guelph, M.Sc. Nebraska, PhD Guelph - Assistant Professor  
Graduate Faculty

### Binyam Desta

BSc, MPH, PhD Waterloo - Assistant Professor  
Graduate Faculty

### Catherine E. Dewey

DVM, M.Sc., PhD Guelph - Professor  
Graduate Faculty

### Todd F. Duffield

DVM, D.V.Sc. Guelph - Professor and Chair  
Graduate Faculty

### Kristen Edwards

BSc DVM PhD Guelph - Assistant Professor  
Graduate Faculty

### Vahab Farzan

DVM Tehran, M.Sc., PhD Guelph - Research Associate, Population  
Medicine, University of Guelph  
Associated Graduate Faculty

### Robert M. Friendship

DVM, M.Sc. Guelph, Dipl. ABVP - Professor Emeritus  
Associated Graduate Faculty

### Basem Gohar

BA Laurentian, M.Sc. Springfield College (US), PhD Laurentian - Assistant  
Professor  
Graduate Faculty

**Lauren Grant**

B.Sc., M.Sc. McMaster, PhD Guelph - Assistant Professor  
Graduate Faculty

**Amy L. Greer**

B.Sc., Mount Allison, M.Sc., Trent, PhD Arizona State - Associate  
Professor  
Graduate Faculty

**Michele T. Guerin**

DVM, M.Sc., PhD Guelph - Associate Professor  
Graduate Faculty

**Derek B. Haley**

BHK Windsor, M.Sc. Guelph, PhD Saskatchewan - Associate Professor  
Graduate Faculty

**Andria Q. Jones**

DVM, PhD Guelph - Associate Professor  
Graduate Faculty

**David F. Kelton**

DVM, M.Sc., PhD Guelph - Professor Emeritus  
Associated Graduate Faculty

**Deep K. Khosa**

B.Sc., D.V.Sc., PhD Murdoch - Associate Professor  
Graduate Faculty

**Stephen J. LeBlanc**

B.Sc. McGill, DVM, D.V.Sc. Guelph - Professor  
Graduate Faculty

**Melissa Mackay**

BASc, MPH, PhD Guelph - Assistant Professor  
Graduate Faculty

**Jennifer E. McWhirter**

B.Sc., PhD Waterloo - Associate Professor  
Graduate Faculty

**Victoria Ng**

B.Sc. New South Wales, PhD Australian National - Senior Scientific  
Evaluator, Public Health Agency of Canada  
Associated Graduate Faculty

**Lee E. Niel**

B.Sc. Simon Fraser, PhD British Columbia - Associate Professor  
Graduate Faculty

**Terri L. O'Sullivan**

DVM, PhD Guelph - Associate Professor  
Graduate Faculty

**Andrew Papadopoulos**

B.A.Sc. Ryerson, MBA York, PhD Guelph - Professor  
Graduate Faculty

**Jane Parmley**

DVM Saskatchewan, PhD Guelph - Associate Professor  
Graduate Faculty

**David L. Pearl**

B.Sc. McGill, M.Sc. York, DVM, PhD Guelph - Professor  
Graduate Faculty

**Zvonimir Poljak**

DVM Croatia, M.Sc., PhD Guelph - Associate Professor  
Graduate Faculty

**David L. Renaud**

B.Sc., DVM, PhD Guelph - Associate Professor  
Graduate Faculty

**Jan M. Sargeant**

DVM, M.Sc., PhD Guelph - Retired Faculty, Population Medicine,  
University of Guelph  
Associated Graduate Faculty

**Kelsey Spence**

B.Sc. Trent, PhD Guelph - Assistant Professor  
Graduate Faculty

**Jeffrey Wichtel**

B.V.Sc., PhD Massey - Professor and Dean, Ontario Veterinary College  
Graduate Faculty

**Charlotte B. Winder**

DVM, D.V.Sc. Guelph - Associate Professor  
Graduate Faculty

## MSc Program

The department offers:

MSc by thesis in the fields of:

1. Epidemiology;
2. Theriogenology;
3. Health Management; and
4. Public Health.

MSc by course work and major research paper in the fields of:

1. Epidemiology; and
2. Public Health.

## Admission Requirements

Students admitted must have an honours or DVM degree (or its equivalent). In addition, the department considers the applicant's special circumstances and the referees' comments. Since the core of the MSc in Population Medicine in the fields of epidemiology or public health builds on knowledge of various analytic techniques, students entering the program should possess knowledge of basic statistical methods and their application.

All applicants should submit a one-page statement of research interests and career goals to assist in the identification of a faculty advisor who has the funding necessary to support the research. Students may be admitted into the Fall, Winter or Summer semesters.

## Program Requirements

Students enroll in one of two study options:

1. thesis, or
2. course work and major research paper.

## Thesis

The prescribed studies are a minimum of four courses (at least 2.0 course credits) appropriate to the discipline. POPM\*6200 Epidemiology

I is a required course for students in epidemiology and public health; students in health management and therio-genology must take either POPM\*6200 Epidemiology I or POPM\*6230 Applied Clinical Research. A minimum of 'B-' average is required in the prescribed studies. The department seminar course, POPM\*6100 Seminar, is also required but does not count as one of the four courses. A thesis must be completed and successfully defended.

### Course Work and Major Research Paper/Practicum Epidemiology

For the MSc by course work and major research paper or practicum in the field of Epidemiology, no fewer than eight courses (at least 4.0 course credits) will be taken. These must be approved by the departmental Graduate Program Committee. Each student in the program will take three core courses (including POPM\*6250 Project in Population Medicine or POPM\*6260 Placement in Epidemiology, which are equivalent to two courses), and at least four additional courses. The department seminar course, POPM\*6100 Seminar, is also required but does not count as one of the eight courses. Normally, the prescribed courses for the MSc in Population Medicine (Epidemiology) by course work and major research project or practicum will include:

Code	Title	Credits
<b>Core Courses</b>		
POPM*6200	Epidemiology I	0.50
POPM*6210	Epidemiology II	0.50
POPM*6250	Project in Population Medicine	1.00
OR		
POPM*6260	Placement in Epidemiology	1.00
<b>Additional Courses</b>		
Select four courses. <sup>1</sup>		
PABI*6550	Epidemiology of Zoonoses	0.50
POPM*6230	Applied Clinical Research	0.50
POPM*6290	Epidemiology III	0.50
POPM*6350	Safety of Foods of Animal Origins	0.50
POPM*6420	Introduction to Qualitative Health Research	0.50
POPM*6950	Directed Studies in Population Medicine	0.50
STAT*6920	Topics in Statistics	0.50
POPM*6520	Introduction to Epidemiological and Statistical Methods	0.50
POPM*6700	Swine Health Management	0.50
POPM*6400	Dairy Health Management	0.50
POPM*6960	Systematic Reviews and Meta-Analysis	0.50
POPM*6800	Infectious Disease Modeling	0.50

<sup>1</sup> The four courses selected will depend upon the student's background, specialty, interest and area of research. Additional courses other than those listed above may be deemed suitable for the student's program by the Departmental Graduate Program Coordinator after recommendations are received from the Advisory Committee.

At least three semesters of full-time study will be required for completion of the MSc program by course work and major research paper option; two of these semesters must be at the University of Guelph. Normally, however, students take 4-5 semesters to complete the program.

### Public Health

For the MSc by course work and major research paper in the field of Public Health, no fewer than eight courses (at least 4.0 course credits)

will be taken. These must be approved by the departmental Graduate Program Committee. Each student in the program will take three core courses (including POPM\*6250 Project in Population Medicine, which is equivalent to two courses), and at least four additional courses. The department seminar course, POPM\*6100 Seminar, is also required but does not count as one of the eight courses. Normally, the prescribed courses for the MSc in Population Medicine (Public Health) by course work and major research project will include:

Code	Title	Credits
<b>Core Courses</b>		
POPM*6200	Epidemiology I	0.50
POPM*6550	Public Health Policy and Systems	0.50
POPM*6250	Project in Population Medicine	1.00
<b>Additional Courses</b>		
Select four courses. <sup>2</sup>		
PABI*6500	Infectious Diseases and Public Health	0.50
POPM*6210	Epidemiology II	0.50
POPM*6290	Epidemiology III	0.50
POPM*6420	Introduction to Qualitative Health Research	0.50
POPM*6510	Health Promotion	0.50
POPM*6530	Health Communication	0.50
POPM*6540	Concepts in Environmental Public Health	0.50
POPM*6580	Public Health Leadership and Administration	0.50
POPM*6950	Directed Studies in Population Medicine	0.50
EDRD*6100	Disaster Planning and Management	0.50
POPM*6520	Introduction to Epidemiological and Statistical Methods	0.50
EDRD*6690	Program Evaluation	0.50
POPM*6600	Applied Public Health Research	0.50
POPM*6800	Infectious Disease Modeling	0.50

<sup>2</sup> The four courses selected in this category will depend upon the student's background, specialty, interest and area of research. Additional courses other than those listed above may be deemed suitable for the student's program by the Departmental Graduate Program Coordinator after recommendations are received from the Advisory Committee.

At least three semesters of full-time study will be required for completion of the MSc program by course work and major research paper option; two of these semesters must be at the University of Guelph. Normally, however, students take 4-5 semesters to complete the program.

## PhD Program

### Admission Requirements

A PhD program is offered in the fields of Epidemiology and Public Health. Admission into this program is usually granted to holders of an MSc or MPH degree who have demonstrated superior performance, or to master's students who have not completed their program but wish to transfer to the PhD program and have performed exceptionally well in courses, shown exceptional aptitude and skill in research, and whose research is suitable for expansion to the doctoral level. For transfer, a thesis proposal and strongly supportive letters of reference are required.

Infrequently, well qualified DVM or honours degree holders may be accepted directly into the PhD program.

All applicants should submit a one-page statement of research interests and career goals to assist in the identification of a faculty advisor who has the funding necessary to support the thesis research. Students may be admitted into the Fall, Winter or Summer semesters.

## Program Requirements

The major emphasis in the PhD program is on the preparation of an acceptable thesis. There are no specific course requirements other than POPM\*6100 Seminar which must be completed once. PhD students who have taken the course as an MSc student will not be required to take the POPM\*6100 seminar course again. Students are also expected to have taken POPM\*6200 Epidemiology I (F) and POPM\*6210 Epidemiology II, or their equivalent, in their master's program. In addition, students in the Public Health field are expected to have taken POPM\*6550 Public Health Policy and Systems or its equivalent, and are highly recommended to take the POPM\*6960 Systematic Reviews and Meta-Analysis course. It is usual for students, in consultation with their advisory committee, to select a suitable program of prescribed studies and additional courses. Course selection takes into account the student's background, research area, career aspirations, and need to prepare for the qualifying examination.

Courses should normally be completed before the qualifying exam is attempted. The written component of the examination is followed by an oral component (two to four hours), usually one week later. Master's holders must complete the qualifying examination by the end of the fifth semester. Students transferring from their master's program and those who enter the program directly after their honours or DVM degrees (or their equivalents) must complete the examination by the end of the seventh semester. In addition, the advisory committee is required to confirm that the student has demonstrated ability and promise in research. The PhD program is completed by the successful defence of a thesis.

## DVSc Program

The Department of Population Medicine participates in the DVSc program with recognized fields in health management and theriogenology. The normal basis for admission to DVSc studies as a regular or a provisional student is a DVM or equivalent degree that would allow the applicant to be eligible for licence to practice veterinary medicine in Ontario. The applicant must have achieved high academic standing as set out in the Admission Requirements in the DVSc program (<https://calendar.uoguelph.ca/graduate-calendar/graduate-programs/veterinary-science/>).

### Health Management

Candidates must have a DVM or equivalent degree, appropriate clinical experience, cumulative average of at least a "B", and be licensed or eligible for licensing to practice veterinary medicine in Ontario. One position in ruminant health management and one position in swine health management are available during most academic years, and they normally start in May or September. It is a three-year program, which will provide training and experience in applied health management and clinical research. Approximately one-third of the time will involve clinical training, teaching final year veterinary students and service duties (including on-call), one-third course work and one-third research. Service duties in ruminant health management are with the Ruminant Field Service clinic of the Veterinary Teaching Hospital. In swine health management, clinical experience and advanced academic activities will

be appropriate for a candidate preparing for board certification in Swine Health Management by the American Board of Veterinary Practitioners. The candidate will be required to complete a substantive thesis research project, related to an applied aspect of production medicine. The DVSc degree requirements include successful completion of POPM\*6100 Seminar plus 2.5 credits of prescribed graduate level courses, a qualifying examination in the student's discipline area, and a successful defence of a thesis. A faculty member(s) in the Department of Population Medicine will supervise each candidate for the Health Management DVSc position.

### Theriogenology

The Department of Population Medicine offers the Doctor of Veterinary Science (DVSc) degree in the field of Theriogenology. Prerequisites include a DVM or equivalent degree, one or two years of practice experience/internship, cumulative average of at least a "B", and eligibility for licensure to practice veterinary medicine in Ontario. The DVSc program provides rigorous advanced academic preparation in the discipline of Theriogenology with a view to preparation for Board Certification by the American College of Theriogenologists. The Theriogenology field at the Ontario Veterinary College is multi-species, with emphasis placed on a candidate's specific areas of interest. The DVSc differs from PhD training by emphasizing the development of both research and applied clinical skills. It is a three-year program, with approximately one-third of the time involving clinical duties within the Veterinary Teaching Hospital, including assisting in teaching of final year veterinary students. The remainder of effort is directed towards a substantive thesis research project in Theriogenology and coursework. The DVSc degree requirements include successful completion of POPM\*6100 Seminar plus 2.5 credits of prescribed graduate level courses, a qualifying examination and successful defense of a thesis. A faculty member(s) in the Department of Population Medicine will supervise each candidate for the Theriogenology DVSc position.

## Collaborative Specializations

### International Development Studies

The Department of Population Medicine participates in the International Development Studies MSc course work/PhD collaborative specialization. Those faculty members whose research and teaching expertise includes aspects of international studies may serve as advisors for MSc course work/PhD in International Development Studies students. Please consult the International Development Studies (<https://calendar.uoguelph.ca/graduate-calendar/collaborative-specializations/international-development-studies/>) listing for a detailed description of the collaborative specialization.

### Neuroscience

The Department of Population Medicine participates in the Neuroscience MSc/PhD collaborative specialization. Those faculty members whose research and teaching expertise includes aspects of neuroscience may serve as advisors for MSc/PhD in Neuroscience students. Please consult the Neuroscience (<https://calendar.uoguelph.ca/graduate-calendar/collaborative-specializations/neuroscience/>) listing for a detailed description of the collaborative specialization.

### One Health

The Department of Population Medicine participates in the collaborative specialization in One Health. Master's and Doctoral students wishing to undertake thesis research or their major research paper/project with an emphasis on one health are eligible to apply to register concurrently in Population Medicine and the collaborative specialization. Students should consult the One Health (<https://calendar.uoguelph.ca/graduate->

calendar/collaborative-specializations/one-health/) listing for more information.

## Regenerative Medicine

The DVSc program participates in the collaborative specialization in Regenerative Medicine. DVSc students wishing to undertake thesis research with an emphasis on regenerative medicine are eligible to apply to register concurrently in the DVSc program and the collaborative specialization. Students should consult the Regenerative Medicine (<https://calendar.uoguelph.ca/graduate-calendar/collaborative-specializations/regenerative-medicine/>) listing for more information.

## Courses

### POPM\*6100 Seminar Fall and Winter Reg Required [0.00]

A practical course that utilizes tutorials, workshops, self- and peer-reviewed assessment to help participants develop skills in public speaking and presentation of scientific data. Each student presents at least one seminar during the course. This is a mandatory two-semester course that MSc, PhD and DVSc students in the Department of Population Medicine take consecutively in their first Fall and Winter semesters.

**Offering(s):** Annually

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

### POPM\*6200 Epidemiology I Fall Only [0.50]

This course covers concepts, principles and methods of basic and applied epidemiology, including the following topics: sampling, measuring disease frequency, clinical epidemiology, descriptive epidemiology, causal reasoning and design, interpretation and critical appraisal of surveys, observational studies, field trials, and critical appraisal.

**Offering(s):** Annually. Also offered through Distance Education format.

**Restriction(s):** Restricted to Public Health and Population Medicine students.

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

### POPM\*6210 Epidemiology II Winter Only [0.50]

Advanced study design and analytic methods for the analysis of data from observational studies and surveys.

**Offering(s):** Annually

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

### POPM\*6230 Applied Clinical Research Winter Only [0.50]

This course is designed to help clinical researchers design, fund, and analyze their clinical research. Emphasis is placed upon planning a well-designed clinical trial and writing a well-organized grant proposal.

**Offering(s):** Annually

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

### POPM\*6250 Project in Population Medicine Summer, Fall, and Winter [1.00]

Collection and analysis of field data and the preparation of a written report suitable for publication, and oral presentation of the findings to the graduate faculty. This course is part of the MSc program by course work in population medicine.

**Offering(s):** Annually

**Restriction(s):** Restricted to Population Medicine MSc coursework/MRP students

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

### POPM\*6260 Placement in Epidemiology Summer Only [1.00]

In this one-semester course, students apply skills and integrate knowledge gained via coursework in a workplace setting by actively conducting and managing clinical trial research. Over a 12- to 16-week period, students work at an academic institute, human or veterinary hospital, government organization or company routinely conducting clinical trial research. The course culminates in the completion of a major research project.

**Offering(s):** Annually

**Restriction(s):** Instructor consent required.

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

### POPM\*6290 Epidemiology III Fall Only [0.50]

This course gives an overview of advanced methods for the analysis of data of clustered/correlated data as opposed to independent data. Special emphasis is on spatial, longitudinal, survival, and time series data.

**Offering(s):** Annually

**Prerequisite(s):** POPM\*6210

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

### POPM\*6400 Dairy Health Management Summer Only [0.50]

This course stresses a population-based, herd-level approach to dairy herd health management, in which optimizing the efficiency of the dairy enterprise is the overall goal. The biological and economic impacts of disease and management deficiencies on herd performance will be discussed as they relate to design and implementation of herd health programs. The course will emphasize the critical role of record keeping, data analysis and monitoring on program success.

**Offering(s):** Even-numbered years

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

### POPM\*6420 Introduction to Qualitative Health Research Winter Only [0.50]

This course offers introductory knowledge in qualitative health research. Students develop qualitative research questions and collect, analyze and interpret qualitative data using different approaches (e.g., interviews, focus groups, etc.).

**Offering(s):** Annually.

**Restriction(s):** Restricted to Ontario Veterinary College graduate students.

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

### POPM\*6510 Health Promotion Winter Only [0.50]

This course introduces students to health promotion and health behaviour theory and practice. Example topics include: social determinants of health, health promotion theories, health behaviour change, campaign planning, and social marketing. Students will apply their knowledge by creating a public health promotion campaign.

**Offering(s):** Annually

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6520 Introduction to Epidemiological and Statistical Methods Fall Only [0.50]**

This is a 0.5 credit introductory graduate course for MPH students and students interested in epidemiology. The course will provide an introduction to research design, grant proposal writing, and critical appraisal, as well as survey (questionnaire) design and basic statistical methods for epidemiological studies.

**Offering(s):** Annually

**Co-requisite(s):** POPM\*6200

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6530 Health Communication Fall Only [0.50]**

This course introduces communication theory, best practices, and skills related to public health. Students will learn about the written, oral, and visual communication of health information for professional, peer, and lay audiences. Students will apply their knowledge by creating a portfolio of health communication materials.

**Offering(s):** Annually

**Restriction(s):** Restricted to Public Health students.

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6540 Concepts in Environmental Public Health Winter Only [0.50]**

This course covers the main concepts of environmental public health including basic elements of environmental toxicology, risk analysis, air and water quality, food safety, waste, occupational health and eco health.

**Offering(s):** Annually

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6550 Public Health Policy and Systems Winter Only [0.50]**

This course covers concepts and principles of public health policy and systems including: public health systems, their structure, funding and governance and their integration into the healthcare system; evolution of public health policy; models of policy development and analysis; stakeholder analysis; and, public health ethics.

**Offering(s):** Annually

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6560 Public Health Practicum Unspecified [1.00]**

In this 1.0 credit course, students will synthesize theoretical concepts, learned via prior coursework, with public health practice. Students will work in a host public health agency for a 12-to 16-week period, focusing on a major project of significance to the host organization.

**Offering(s):** Annually

**Prerequisite(s):** POPM\*6200, POPM\*6510, POPM\*6520, POPM\*6530, POPM\*6540, and POPM\*6550

**Restriction(s):** Restricted to Public Health students.

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6570 Public Health Capstone Fall Only [0.00]**

This course serves as a capstone for students in the Master of Public Health program to reflect on, interpret, and present their practicum work in a variety of formats, including public presentation, to enhance their communication skills and abilities.

**Offering(s):** Annually

**Prerequisite(s):** POPM\*6560

**Restriction(s):** Restricted to Public Health students.

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6580 Public Health Leadership and Administration Fall Only [0.50]**

This course will teach students to develop, implement and improve public health programs. Understanding an organization's mission and priorities, and developing business plans is critical for an effective administrator. Furthermore, it introduces theories and effective components of leadership and describes the practical role of the leader.

**Offering(s):** Annually

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6590 Public Health Practicum II Winter Only [1.00]**

This course allows students in the Master of Public Health program to undertake an optional second practicum experience. They will work in a host public health organization or agency for a 12- to 16-week period, focusing on a major project of significance to the host organization.

**Offering(s):** Annually

**Prerequisite(s):** POPM\*6560

**Restriction(s):** Restricted to Public Health students.

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6600 Applied Public Health Research Summer, Fall, and Winter [0.50]**

Students will undertake a supervised research project on a public health issue or problem. The project will involve analysis and interpretation of public health information and the findings will be presented in a written report.

**Offering(s):** Annually

**Prerequisite(s):** POPM\*6560

**Restriction(s):** Restricted to Public Health students.

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6610 Theriogenology of Cattle Unspecified [0.50]**

A lecture/seminar course emphasizing the relationship of nutritional, genetic, endocrine, anatomic, and environmental factors with the reproductive health of cattle. Application of reproductive technologies will also be covered.

**Offering(s):** Occasional years

**Restriction(s):** Restricted to DVSc students.

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6630 Theriogenology of Horses Unspecified [0.50]**

A lecture/seminar course covering the genetic, endocrine, anatomic and environmental factors that affect reproductive performance and health of horses. Breeding management, including recent technologies, and management of the infertile animal will be included.

**Offering(s):** Occasional years

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6650 Theriogenology of Dogs and Cats Unspecified [0.50]**

A seminar/lecture series that includes the theory and management of clinical reproduction for the dog and cat, including use of developing technologies.

**Offering(s):** Occasional years

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6670 Theriogenology of Small Ruminants Unspecified [0.50]**

A seminar/laboratory course emphasizing advanced reproductive management of sheep, goats and farmed deer/elk, with the emphasis on a sheep production model. New reproductive technologies will be included.

**Offering(s):** Occasional years

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6700 Swine Health Management Unspecified [0.50]**

Diseases of swine are studied with particular emphasis on preventive medicine and herd-health management.

**Offering(s):** Even-numbered years

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6800 Infectious Disease Modeling Winter Only [0.50]**

This course serves as a basic introduction to mathematical modeling of infectious diseases using examples from public and veterinary health.

Students completing this course will have the ability to critically appraise published mathematical models, and to build, parameterize, and analyze simple compartmental models.

**Offering(s):** Annually

**Prerequisite(s):** POPM\*6200

**Restriction(s):** Instructor consent required.

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6950 Directed Studies in Population****Medicine Unspecified [0.50]**

Assigned reading and/or special projects selected to provide in-depth study of topics appropriate to the specialized interests of individual students. Courses offered under this title have included Special Topics in Public Health; Ecology and Health; Systems Approaches; and Animal Welfare. Different offerings are assigned different section numbers.

**Offering(s):** Annually

**Department(s):** Department of Population Medicine

**Location(s):** Guelph

**POPM\*6960 Systematic Reviews and Meta-Analysis Fall Only [0.50]**

This course covers the use of systematic reviews in animal and public health, the steps in conducting a systematic review, and quantitative synthesis of research results from multiple studies (meta-analysis). The course combines didactic lectures and videos with practical exercises during class time.

**Offering(s):** Annually

**Prerequisite(s):** POPM\*6200 and POPM\*6520

**Department(s):** Department of Population Medicine

**Location(s):** Guelph