

# Applied Health Informatics and Data Management (POPM 6950-S02)

Department of Population Medicine  
Ontario Veterinary College  
Summer 2018

## Course Description

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Are you interested in applying new technologies to improve health? Our teaching philosophy embraces co-creation and collaborative learning. Get hands-on experience interacting with emerging technologies (e.g. chatbots, wikis, artificial intelligence, social media, crowdsourcing, citizen science, telehealth) and using tools (for non-data scientists) and software to manage research data (e.g. data sources, formats, cleaning, security, visualization, big data, repositories). [0.5 credits]

**Course Times:** 9– 11:50 am, Tue (POPM2511) Wed (PAHL 4838) Thurs (POPM2511)

**Course Dates:** Wednesday May 23<sup>rd</sup> to Tuesday June 26<sup>th</sup>

**Expectations:** You are expected to attend every class. You are also expected to come to class having reviewed certain topics so that classroom time can be spent applying what you've learned.

## Course Coordinators and Instructors

Dr. Theresa Bernardo: [theresabernardo@gmail.com](mailto:theresabernardo@gmail.com) OVC, OldVMI Room 109B

Dr. Cathy Bauman: [cbauman@uoguelph.ca](mailto:cbauman@uoguelph.ca) Stewart Building Room 2542

Dr. Adam Campigotto: [acampigo@uoguelph.ca](mailto:acampigo@uoguelph.ca)

Dr. Ben Ouyang: [zouyang@uoguelph.ca](mailto:zouyang@uoguelph.ca)

**Office Hours:** After class or by appointment

## Learning Outcomes

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The objective of this course is to provide students with hands on experience and a working knowledge of emerging technologies and their application to health (individual, population, human, animal, environmental), as well as the management of associated data from various sources.

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

1. Construct criteria to evaluate emerging technologies and their application for health.
2. Make informed decisions about what technologies to use and how to apply them in their research.
3. Design a data management plan.
4. Utilize readily available tools and software to access, capture, manipulate, clean, analyze and visualize (their) data using established best practices.
5. Identify appropriate modes of communication and engagement (eg. social media, video).
6. Find, use and create examples of health applications of emerging technologies (such as chatbots, wikis and artificial intelligence).
7. Plan the use of collaboration technologies, in a mix of in-person and virtual environments.
8. Explain new technologies and their potential health applications using existing and hypothetical examples.

## Teaching Methods

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This course will encourage participation and active learning to improve students' digital literacy and critical thinking abilities. It will consist of a combination of short lectures, use of real-world examples, tutorials, discussions, student presentations, demonstrations of findings, regular assignments and major projects.

There is no required textbook for this course. There will be frequently assigned readings and web sites or applications to explore and explain.

## Course Schedule (order of content may vary according to students and interests)

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Week	Date	Topic(s)
1	May 23, 24	Introduction to health informatics and chatbots
2	May 29, 30, 31	Data management plans, data cleaning/transformation and visualization
3	June 5, 6, 7	Web-based tools and resources for research
4	June 12, 13, 14	Artificial intelligence for health (examples and application)
5	June 19, 20, 21	Student presentations and selected topics (eg. big data, telehealth)
6	June 26	Feedback and conclusions

## Assessment

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Assignment	Date Due	Grade (% of course)
In class assignments	Multiple short assignments will be introduced throughout the course for presentation by students in a subsequent class.	40%
Data assignment	Will be introduced in week 2 (May 29 – 31). Due on June 7, 2018.	30%
Final project	Due to be presented in class the week of June 19 – 21, 2018	30%

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## Rules and Regulations

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All policies of the University of Guelph, the Ontario Veterinary College and the Department of Population Medicine apply. It is the responsibility of each student to be familiar with these policies.

### *Graduate Calendar*

The Graduate Academic Calendar is the source of information about the University of Guelph's procedures, policies and regulations that apply to graduate programs

<http://www.uoguelph.ca/registrar/calendars/graduate/current/>

### *Academic Integrity*

Students are expected to have reviewed the graduate calendar concerning academic integrity and academic misconduct ([https://www.uoguelph.ca/registrar/calendars/graduate/2017-2018/genreg/sec\\_d0e3039.shtml](https://www.uoguelph.ca/registrar/calendars/graduate/2017-2018/genreg/sec_d0e3039.shtml)), and should feel free to talk with the course coordinator/instructor if they are concerned about these issues in relation to a specific assignment and/or examination.

Please note that academic misconduct takes many forms and includes, but is not limited to: copying, plagiarism, submitting a product prepared in whole or by another person, buying or selling academic work, submitting the same piece of work twice for academic credit. Also note that aiding/abetting academic misconduct is itself academic misconduct. Please be aware that instructors have access to and the right to use electronic and other methods to detect academic misconduct.

Do not forget that UNIV\*7100, Academic Integrity for Graduate Students, must be completed by new graduate students by the 20th day of classes (June 7, 2018).

### ***Drop date***

The last date to drop one-semester courses, without academic penalty, is June 7, 2018. Refer to the Graduate Calendar for the schedule of dates:

<https://www.uoguelph.ca/registrar/calendars/graduate/2017-2018/sched/sched-dates-w11.shtml>

### ***Academic accommodations***

Students who require academic accommodation due to a disability must first contact Student Accessibility Services (SAS): <https://wellness.uoguelph.ca/accessibility/> Staff at SAS will review the student's documentation concerning the disability and assist the student in making the appropriate arrangements with the faculty member. Additional information concerning academic accommodations for students with disabilities can be found in the calendar:

[https://www.uoguelph.ca/registrar/calendars/graduate/2017-2018/genreg/sec\\_d0e2725.shtml](https://www.uoguelph.ca/registrar/calendars/graduate/2017-2018/genreg/sec_d0e2725.shtml)

### ***Academic Misconduct***

The Academic Misconduct Policy is detailed in the Graduate Calendar

[https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec\\_d0e3039.shtml](https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e3039.shtml)

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 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.

In the case of the graduate academic misconduct policy, the Graduate Calendar states:

"It should not be possible for a student to claim that he/she was not warned about the University's academic misconduct regulations, what constitutes academic misconduct and the potential consequences of transgressing."

### ***Referencing Policy***

Written work that is not properly referenced will be below the standard expected in this course and will be returned to the student with no mark. The student will be expected to re-submit the paper during the next class, fully and properly referenced to have the paper accepted for grading. Failure to re-submit the paper will result in a grade of zero (0) on the assignment. Among other things, proper referencing involves the consistent use of a single referencing style.

### ***Copies of out-of-class assignments***

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

### ***Accessibility***

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email [csd@uoguelph.ca](mailto:csd@uoguelph.ca) or see the website: <https://www.uoguelph.ca/csd/>

### ***When You Cannot Meet a Course Requirement***

Late assignments will be penalized at 5% of the value of the assignment each day late, weekends included. 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. See the Graduate Calendar for information on regulations and procedures for Academic Consideration:

[https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec\\_d0e2562.shtml](https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e2562.shtml)

Please note that religious obligations are also grounds for academic accommodation:

[https://www.uoguelph.ca/registrar/calendars/graduate/2017-2018/genreg/sec\\_d0e2598.shtml](https://www.uoguelph.ca/registrar/calendars/graduate/2017-2018/genreg/sec_d0e2598.shtml)

### ***Counselling Services***

<http://www.counselling.uoguelph.ca/counselling/>

Counselling Services offer individual counselling sessions to help support students as they work through the personal challenges that impair their ability to succeed at school and in other areas of their lives.

### ***Student Health Services***

<https://www.uoguelph.ca/studenthealthservices/clinic>

Student Health Services offers a variety of health care services, including primary health care, a walk-in clinic and on-site laboratory testing.

### ***The Learning Commons***

<http://www.learningcommons.uoguelph.ca/>

The Learning Commons brings together services that support students in their learning, writing, research, numeracy and the use of technology. In addition, they provide expertise and resources for faculty, staff and teaching assistants to support and enhance learning in their courses and across the curricula.

***Health and Performance Centre***

<http://www.uoguelph.ca/hpc/>

Health and Performance Centre specializes in the diagnosis, treatment and rehabilitation of acute and chronic orthopedic, musculoskeletal, sport and activity related injuries. The Centre also provides a variety of health promotion services including fitness and nutrition expertise and professional bicycle fitting.

***In-Class Behaviour***

Students are expected to come to lectures prepared for the class. Questions are encouraged at any time during lecture if they do not interfere with the other students' ability to take in the material presented. Students are expected to treat each other with the utmost respect; disruptions to the class will not be permitted.

***Email Communication***

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

***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.

***Environmental Policy***

We would like to minimize the use of paper in this course and therefore, encourage you to hand in assignments electronically.

***University of Guelph Map*** <http://www.uoguelph.ca/campus/map/>