

McGill University  
Department of Epidemiology, Biostatistics and Occupational Health

# Principles and Practice of Public Health Surveillance

## EPIB 679

### GENERAL INFORMATION

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#### Instructors

Name	Email
David Buckeridge	david.buckeridge@mcgill.ca
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#### Schedule

Event	Days	Time	Location
Seminars	Jan 5, 7, 9, April 13	1:30 to 4:30 p.m.	1140 Pine Avenue, Conference Room
Modules	Jan 14, 28, Feb 4, 18, Feb 24, Mar 11, Mar 25, Apr 8	1:30 to 4:30 p.m.	1140 Pine Avenue, Conference Room
Office Hours	By appointment		1140 Pine Avenue

#### Course Website

<http://surveillance.mcgill.ca/wiki/epib679>

#### Prerequisites

Students must have taken courses in epidemiology (EPIB 601 or equivalent), biostatistics (EPIB 617 or equivalent), and population health (EPIB 612 or equivalent), or have the permission of the instructor. Students are encouraged to use R statistical software and to bring a laptop to class.

#### Course Description

This 3 credit course is designed for upper-year graduate students in epidemiology and public health who want to understand the theory and methods underlying surveillance,

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a core public health function. Students should already understand the concept of population health, be able to describe major population health determinants and outcomes, and be able to perform basic epidemiological analyses. The seminars in the course will define surveillance and situate surveillance within public health practice. Issues of measurement and calculating indicators will be considered. Analytical methods for surveillance will be introduced. The future of surveillance and current challenges will be discussed. In the series of four skills modules, students will obtain a deeper understanding of the theory and methods required to accomplish four fundamental tasks in public health surveillance: estimating the burden of a disease, forecasting a surveillance series, temporal aberration detection, and chronic disease surveillance.

## OBJECTIVES

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**Substantive knowledge** of surveillance is required to work and conduct research effectively in this area. To this end, students should be able:

- to define public health surveillance;
- to explain how surveillance relates to public health practice and conceptual models of population health;
- to describe an approach to routine measurement of disease burden;
- to identify data sources used for surveillance;
- to describe the utility and validity of indicators;
- to interpret commonly used surveillance indicators;
- to explain issues with the analysis of surveillance data; and,
- to understand the standardization of rates.

**Skills in analysis** of surveillance are also required to work and conduct research effectively in this area. To this end, students should be able:

- to manipulate and plot surveillance data;
- to estimate the burden attributable to a disease from a surveillance time series;
- to detect a statistical aberration in a surveillance time series; and,
- to identify and analyze cases of chronic disease in administrative data.

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## INSTRUCTIONAL APPROACH AND COURSE MATERIALS

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### Instructional Approach

Instruction will occur through seminars and hands-on modules. The seminars are intended to give a general introduction to concepts essential to public health surveillance. The modules are intended to allow students to apply concepts and gain experience in completing fundamental surveillance tasks.

### Readings

There are three suggested textbooks and readings are also drawn from journal articles. The general reading list is available on-line and students are encouraged to consult relevant readings before the seminars. In advance of the modules, students will be assigned specific readings to be completed.

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## ASSIGNMENTS AND EVALUATION

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### Assignments

Students will complete four modules requiring the application of surveillance methods to data. Each module will be graded pass or fail.

### Exams

There are no exams in this course.

### Final Grade Calculation

Passing the course will require a passing grade on all four modules.

### Academic Integrity

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see [www.mcgill.ca/integrity/](http://www.mcgill.ca/integrity/) for more information). (approved by Senate on 29 January 2003).

## **Language Policy**

In accord with McGill University's Charter of Students Rights, students in this course have the right to submit in English or in French any written work that is to be graded. (approved by Senate on 21 January 2009).