

# PH5106: FUNDAMENTALS OF EPIDEMIOLOGY IN PUBLIC HEALTH

---

## Effective Term

Semester A 2025/26

## Part I Course Overview

### Course Title

Fundamentals of Epidemiology in Public Health

### Subject Code

PH - Infectious Diseases and Public Health

### Course Number

5106

### Academic Unit

Infectious Diseases and Public Health (PH)

### College/School

Jockey Club College of Veterinary Medicine and Life Sciences (VM)

### Course Duration

One Semester

### Credit Units

3

### Level

P5, P6 - Postgraduate Degree

### Medium of Instruction

English

### Medium of Assessment

English

### Prerequisites

Nil

### Precursors

Nil

### Equivalent Courses

Nil

### Exclusive Courses

Nil

## Part II Course Details

### Abstract

Epidemiology is the study of the distribution (frequency, patterns in time and space) and determinants (causes, risk / protective factors) of health-related states and events (e.g., diseases) in specified populations. Epidemiology provides public health scientists and researchers with tools and methods to investigate the outbreak and spread of diseases in populations from different perspectives. Epidemiological principles guide the public health decision-makers through the risk management process, how to effectively prevent from, control, and eventually eliminate diseases. In epidemiology, the patient is the community, and individuals are viewed collectively. We study epidemiology using a "One Health" approach, which focuses on the health of animals and humans within a common environment. A reasonable level of understanding of epidemiological concepts and methods is necessary for all public health sector workers, researchers, and policymakers. This course is intended to introduce key One Health and epidemiological concepts and research methods to enable graduate students to develop well-designed public health studies, critically appraise the relevant literature, quantify health-related events in populations, measure associations, evaluate diagnostic tools, and investigate diseases effectively.

### Course Intended Learning Outcomes (CILOs)

CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Explain the key epidemiological concepts pertaining to public health	x	x	
2	Develop well-designed research studies to answer health-related questions	x	x	
3	Appraise critically the scientific evidence about health and diseases	x	x	x
4	Evaluate the performance of the screening and diagnostic tools used in public health investigations	x	x	x

#### A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

#### A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

#### A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

### Learning and Teaching Activities (LTAs)

LTAs		Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures	Students will engage in lectures, providing the fundamental concepts and methods in epidemiology, causality, study design, sampling populations, measuring diseases and associations, critical appraisal of public health literature, screening and diagnostic tools evaluation, analysing and interpreting health/disease data	1, 2	2 hrs per week
2	Hands-on practical tasks (tutorials)	Students will take on hands-on problem-based exercises to facilitate their conceptual understanding and explaining of the topics	2, 3, 4	1 hr per week

**Assessment Tasks / Activities (ATs)**

ATs		CILO No.	Weighting (%)	Remarks ("- " for nil entry)	Allow Use of GenAI?
1	Classroom assessment	1, 2, 3, 4	10	This assessment will be based on the student's active class participation .	Yes
2	Midterm examination	1, 2, 4	40	This will include all topics covered by the end of Week 6 .	No

**Continuous Assessment (%)**

50

**Examination (%)**

50

**Examination Duration (Hours)**

2

**Minimum Continuous Assessment Passing Requirement (%)**

30

**Minimum Examination Passing Requirement (%)**

40

**Assessment Rubrics (AR)****Assessment Task**

Classroom assessment (for students admitted before Semester A 2022/23 and in Semester A 2024/25 &amp; thereafter)

**Criterion**

Students will engage in in the class discussions and hands-on exercises

**Excellent**

(A+, A, A-) High

**Good**

(B+, B, B-) Significant

**Fair**

(C+, C, C-) Moderate

**Marginal**

(D) Basic

**Failure**

(F) Not reaching basic levels

---

**Assessment Task**

Midterm examination (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Students will be tested on their comprehension of the concepts and topics taught in the classes (end of Week 6), and their ability to communicate that in the written format

**Excellent**

(A+, A, A-) High

**Good**

(B+, B, B-) Significant

**Fair**

(C+, C, C-) Moderate

**Marginal**

(D) Basic

**Failure**

(F) Not reaching basic levels

---

**Assessment Task**

Final examination (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Students will be tested on their comprehension of the concepts and topics taught in the classes (from Week 7 to the end), and their ability to communicate that in the written format

**Excellent**

(A+, A, A-) High

**Good**

(B+, B, B-) Significant

**Fair**

(C+, C, C-) Moderate

**Marginal**

(D) Basic

**Failure**

(F) Not reaching basic levels

---

**Assessment Task**

Classroom assessment (for students admitted from Semester A 2022/23 to Summer Term 2024)

**Criterion**

The participation of students in the classes and hands-on exercises

**Excellent**

(A+, A, A-) Participation in >90% of the classes

**Good**

(B+, B) Participation in 85-90% of the classes

**Marginal**

(B-, C+, C) Participation in 70-85 % of the classes

**Failure**

(F) Limited participation in classes (<70%)

---

**Assessment Task**

Midterm examination (for students admitted from Semester A 2022/23 to Summer Term 2024)

**Criterion**

The comprehension of the concepts and topics taught in the classes (end of Week 6), and the ability to communicate that in the written format

**Excellent**

(A+, A, A-) Students achieve  $\geq 86\%$  of the mark in the examination

**Good**

(B+, B) Students achieve  $\geq 70$  and  $< 86$  of the mark in the examination

**Marginal**

(B-, C+, C) Students achieve  $\geq 50$  and  $< 70$  of the mark in the examination (C letter grade is at least 50% or greater)

**Failure**

(F) Students achieve  $< 50\%$  of the mark in the examination

---

**Assessment Task**

Final examination (for students admitted from Semester A 2022/23 to Summer Term 2024)

**Criterion**

The comprehension of the concepts and topics taught in the classes (from Week 7 to the end), and the ability to communicate that in the written format

**Excellent**

(A+, A, A-) Students achieve  $\geq 86\%$  of the mark in the examination

**Good**

(B+, B) Students achieve  $\geq 70$  and  $< 86$  of the mark in the examination

**Marginal**

(B-, C+, C) Students achieve  $\geq 50$  and  $< 70$  of the mark in the examination (C letter grade is at least 50% or greater)

**Failure**

(F) Students achieve  $< 50\%$  of the mark in the examination

## Part III Other Information

**Keyword Syllabus**

Epidemiology; One Health; study design; screening and diagnostic tests;; measures of association, causality; bias; data analysis

**Reading List****Compulsory Readings**

	Title
1	Dohoo, Ian Robert, S. Wayne Martin, and Henrik Stryhn. 2012. Methods in Epidemiologic Research. Charlottetown, P.E.I.: VER, Inc. <a href="https://projects.upei.ca/mer/">https://projects.upei.ca/mer/</a>
2	Susan Carr, Nigel Unwin, and Tanja Pless-Mulloli. 2007. An Introduction to Public Health and Epidemiology. Second Edition. Open University Press. <a href="https://pestcontrol.ru/assets/files/biblioteka/file/20-susan_carr_nigel_unwin_tanja_pless-mulloli-an_introduction_to_public_health_and_epidemiology_2007.pdf">https://pestcontrol.ru/assets/files/biblioteka/file/20-susan_carr_nigel_unwin_tanja_pless-mulloli-an_introduction_to_public_health_and_epidemiology_2007.pdf</a>

**Additional Readings**

	Title
1	Ann Aschengrau and George R. Seage. 2018. Essentials of Epidemiology in Public Health, Fourth Edition. Jones & Bartlett Learning. ISBN 128417610X, 9781284176100.
2	The STROBE statement: <a href="https://www.strobe-statement.org/index.php?id=strobe-home">https://www.strobe-statement.org/index.php?id=strobe-home</a>
3	The CONSORT statement: <a href="http://www.consort-statement.org/consort-2010">http://www.consort-statement.org/consort-2010</a>
4	<a href="https://epitools.ausvet.com.au/">https://epitools.ausvet.com.au/</a>