PH6204: PUBLIC HEALTH SURVEILLANCE

Effective Term
Semester B 2024/25

Part I Course Overview

Course Title
Public Health Surveillance

Subject Code
PH - Infectious Diseases and Public Health
Course Number
6204

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
Students will introduce to Public Health Surveillance, fundamental public health function that is crucial for comprehending and monitoring population health. They will examine the theory, data collection methods, data analysis methodologies,

and presentation strategies of the systematic, continuous study and interpretation of population health data to inform planning, implementation, and assessment of public health practice. Students will identify the various types of surveillance and their respective applications in a variety of scenarios. During practical experiences/laboratories, data gathering tools are designed and their practical applications are examined. Real-world surveillance data are used to illustrate methods for analysis and how to convey surveillance data to various audiences.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Demonstrate and understand different designs in basic public health surveillance including active and passive surveillance programs		x	x	
2	Identify and understand the elements required in the development of a surveillance system		x	x	x
3	Learn how to analyze and interpret data produced from public health surveillance systems		x	x	x
4	Understand when and how to use behavioural surveillance techniques to predict disease epidemics and develop public health strategies and measures		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 be introduced to the fundamental concepts and principles of public health surveillance, survey methods, design of public health surveillance systems, and analysis of surveillance data and real-world data through lectures.	1, 2, 3, 4	3 hours /week

2	Field-Based Learning	Students will engage in field-based learning at the Hong Kong Museum of Medical Sciences and the Legislative Council, which will offer them practical knowledge and first-hand experience. The museum showcases the historical development of medical sciences, allowing students to explore medical advancements and public health initiatives. Visiting the Legislative Council provides students with an opportunity to engage in discussions with council members about public health-related legislation, enabling them to gain insights into the decision-making process. These experiences will deepen students' understanding of healthcare challenges and policy formulation, enhancing their skills and preparing them for future endeavours in healthcare or public policy.	1, 2, 3, 4	
3	Hands-on practical tasks	Students will engage in hands-on problem-based group activities that will be conducted to facilitate conceptual mastery. These will be combined with take-home practical tasks.	2, 3, 4	
4	Self-Directed Projects and Synthesized Submissions	Students will be provided with take home assignments in conjunction with the in-class practical projects.	2, 3	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Case Discussion Participation	1, 2, 3, 4	20	To achieve ILO 1-2 by engaging students in critical analysis and discussion of real-world public health surveillance cases. Description: Students will participate in case discussions, actively engaging with peers and the instructor to discuss and analyze assigned cases.
2	Take home assignment	2, 3, 4	30	To achieve ILO 1-2 by assessing students' ability to apply analytical skills to public health surveillance data. Description: Students will be given three assignments will throughout the course, requiring them to analyze data, interpret results, and propose improvements.
3	Group Presentation	1, 2, 3, 4	20	To achieve ILO 1-4 by evaluating students' ability to work collaboratively and present public health surveillance topics. Description: Students will be divided into groups to research a specific public health surveillance topic, prepare a presentation, and present their findings to the class.

4	Final project	1, 2, 3, 4	30	To achieve ILO 1-4 by assessing students' ability to conduct a detailed analysis of a public health surveillance issue and communicate their findings. Description: Students will select a public health surveillance issue for in-depth investigation. The final report will include an introduction, methodology, results, discussion, and recommendations.

Continuous Assessment (%)

100

Assessment Rubrics (AR)

Assessment Task

Case Discussion Participation (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Engagement: Regular and meaningful participation in discussions.
Quality of Contributions: Relevance, depth, and insightfulness of comments.
Collaboration: Constructive interaction with peers, respecting diverse perspectives.

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

Take home assignment (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Accuracy: Correct application of surveillance concepts and methods.
Clarity: Clear and concise presentation of findings.
Critical Analysis: Identification of issues, proposal of solutions, and justification of recommendations.

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

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

Criterion

Content: Accurate coverage of the topic.
Organization: Logical flow and structure of the presentation.
Delivery: Clarity, confidence, and engagement of presenters.
Teamwork: Effective coordination and contribution from all group members.

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

Criterion

Introduction: Clear statement of the issue's significance.
Methodology: Detailed and appropriate description of methods used.
Results: Accurate and thorough presentation of findings.
Discussion: Insightful analysis of results, including limitations and implications. Recommendations: Practical, evidence-based suggestions for improvement.
Writing Quality: Clear, concise, and well-organized writing.

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.

Excellent
(A+, A, A-) High

Good
(B+, B) Significant

Marginal
(B-, C+, C) Moderate

Failure
(F) Not reaching marginal levels

Assessment Task
Take home assignment (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion
Demonstrate understanding of concepts of public health surveillance and how to establish mainstream public health issues and design public health surveillance models to predict the trend of disease epidemics and public health measures to be taken .

Excellent
(A+, A, A-) High

Good
(B+, B) Significant

Marginal
(B-, C+, C) Moderate

Failure
(F) Not reaching marginal levels

Assessment Task

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

Criterion

Students should:
1) Conduct a brief literature review to identify the one of region or national public health priority for trend assessment
2) Identify an appropriate data sources for the topic selected.
3) Analyzed data using the surveillance-specific analytic approach.
4) Present their findings, its policy implication, clinical relevance and limitation of the study in the class for peer evaluation, and
5) Finally, develop a final paper based on an independent analysis of data set.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate

Failure

(F) Not reaching marginal levels

Assessment Task

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

Criterion

The comprehension of the use and of the principles of Public Health Surveillance, survey methods covered in the course and interpretation of results from final project paper.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate

Failure

(F) Not reaching marginal levels

Part III Other Information

Keyword Syllabus

Epidemiology; Infectious diseases surveillance; Sero-surveillance; Behavioural surveillance; Real world data

Reading List

Compulsory Readings

	Title
1	Lee L. Principles & practice of public health surveillance. Oxford: Oxford University Press; 2010.
2	Choi B. The Past, Present, and Future of Public Health Surveillance. Scientifica. 2012;2012:1-26.

Additional Readings

	Title
1	Leung K, Wu J, Leung G. Real-time tracking and prediction of COVID-19 infection using digital proxies of population mobility and mixing. Nature Communications. 2021;12(1).
2	Ibrahim N. Epidemiologic surveillance for controlling Covid-19 pandemic: types, challenges and implications. Journal of Infection and Public Health. 2020;13(11):1630-1638.
3	Goodman L, Whittaker G. Public health surveillance of infectious diseases: beyond point mutations. The Lancet Microbe. 2021;2(2):e53-e54.
4	Brownstein J, Freifeld C, Madoff L. Digital Disease Detection — Harnessing the Web for Public Health Surveillance. New England Journal of Medicine. 2009;360(21):2153-2157.