

PH8002: INFECTIOUS DISEASE EPIDEMIOLOGY

Effective Term

Semester B 2024/25

Part I Course Overview

Course Title

Infectious Disease Epidemiology

Subject Code

PH - Infectious Diseases and Public Health

Course Number

8002

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

R8 - Research 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 be introduced to the principles of infectious disease epidemiology, spatial analysis, and mathematical modelling of infectious diseases in this course. The emergence of infectious diseases affecting animals and humans is one

of the most important and growing threat for modern society, strongly associated with economic development, globalisation and urbanisation.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Demonstrate an understanding of the key epidemiological concepts associated with the spread of infectious diseases		x	x	
2	Develop simple mathematical models of infectious disease spread		x	x	x
3	Perform descriptive and exploratory spatial analyses of infectious disease occurrence		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 infectious disease epidemiology, mathematical modelling, and spatial analysis through lectures.	1, 2, 3	
2	Hands-on practical tasks	Students will participate in hands-on, problem-based group activities to facilitate their conceptual understanding, which will be combined with individual tasks.	2, 3	
3	Self-Directed Projects and Synthesized Submissions	Students will be provided with individual tasks in conjunction with the in-class practical projects.	2, 3	Out of classroom

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Classroom assessment	1, 2, 3	40	Students will be assessed based on their class participation.
2	Assignments and reports	2, 3	40	Students will complete tasks designed to evaluate their mastery of the different concepts learned in this course and their ability to apply them to realistic veterinary infectious disease problems.
3	Group Presentation	2, 3	20	Students will complete tasks designed to evaluate their mastery of relevant research papers on infectious disease epidemiology.

Continuous Assessment (%)

100

Assessment Rubrics (AR)**Assessment Task**

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

Criterion

The assessment of the contents in both the theoretical and practical parts.

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

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

Criterion

The application of the techniques/tools learned/recommended in this course.

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

The demonstration of the principles of infectious disease epidemiology.

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 assessment of the contents in both the theoretical and practical parts.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Basic

Failure

(F) Not reaching basic levels

Assessment Task

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

Criterion

The application of the techniques/tools learned/recommended in this course.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Basic

Failure

(F) Not reaching basic levels

Assessment Task

Group Presentation (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

The demonstration of the principles of infectious disease epidemiology.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Basic

Failure

(F) Not reaching basic levels

Part III Other Information

Keyword Syllabus

epidemiology; dynamic disease modelling; mathematical modelling; infectious disease epidemiology; descriptive spatial analysis; exploratory spatial analysis

Reading List

Compulsory Readings

Title	
1	Pfeiffer,D.U. (2010): Ch. 1 Introduction and Ch. 2 General epidemiological concepts. In Pfeiffer, D.U.: Introduction to Veterinary Epidemiology. Wiley-Blackwell. 13-32. (out of print but copyright has been returned to the author and the text is therefore now available for free download here) https://www.researchgate.net/publication/305279557_Introduction_to_Veterinary_Epidemiology?channel=doi&linkId=5786613d08aef321de2c66c6&showFulltext=true Or https://ebookcentral.proquest.com/lib/cityuhk/detail.action?docID=707905
2	Dohoo, W. Martin and H. Stryhn (2012): Introduction and causal concepts. Chapter 1. In I.R. Dohoo, W. Martin and H. Stryhn (eds): Methods in epidemiologic research. AVC Inc., Charlottetown, Prince Edward Island, Canada. 1-34 (PDF file can be downloaded from https://projects.upei.ca/mer/)
3	Medley,G. and Dohoo,I. (2012): Concepts of infectious disease epidemiology. Chapter 25. In I.R. Dohoo, W. Martin and H. Stryhn (eds): Methods in epidemiologic research. AVC Inc., Charlottetown, Prince Edward Island, Canada. 753-778 (PDF file can be downloaded from https://projects.upei.ca/mer/)
4	Sanchez,J. (2012): Analysis of spatial data. Introduction and visualization. Chapter 25. In I.R. Dohoo, W. Martin and H. Stryhn (eds): Methods in epidemiologic research. AVC Inc., Charlottetown, Prince Edward Island, Canada. 701-716 (PDF file can be downloaded from https://projects.upei.ca/mer/)
5	Pfeiffer,D.U. (2012): Analysis of spatial data. Chapter 26. In I.R. Dohoo, W. Martin and H. Stryhn (eds): Methods in epidemiologic research. AVC Inc., Charlottetown, Prince Edward Island, Canada. 717-752 (PDF file can be downloaded from https://projects.upei.ca/mer/)

Additional Readings

Title	
1	Pfeiffer,D.U. (2010): Introduction to Veterinary Epidemiology. Wiley-Blackwell. 132pp. (out of print but copyright has been returned to the author and the text is therefore now available for free download here) https://www.researchgate.net/publication/305279557_Introduction_to_Veterinary_Epidemiology?channel=doi&linkId=5786613d08aef321de2c66c6&showFulltext=true Or https://ebookcentral.proquest.com/lib/cityuhk/detail.action?docID=707905
2	Pfeiffer,D.U., Robinson,T.P., Stevenson,M., Stevens,K.B., Clements,A.C.A. and Rogers,D. (2008): Chapters 1 to 3 in Spatial analysis in epidemiology. Oxford University Press, Oxford, UK, 208pp. (http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780198509882.001.0001/acprof-9780198509882)