

**City University of Hong Kong  
Course Syllabus**

**offered by Department of Infectious Diseases and Public Health  
with effect from Semester A 2022/23**

---

---

**Part I Course Overview**

**Course Title:** Introduction to Biostatistics in One Health

**Course Code:** PH5102

**Course Duration:** 1 semester

**Credit Units:** 3 credits

**Level:** P5

- Arts and Humanities
- Study of Societies, Social and Business Organisations
- Science and Technology

**Proposed Area:**  
*(for GE courses only)*

**Medium of Instruction:** English

**Medium of Assessment:** English

**Prerequisites:**  
*(Course Code and Title)* Nil

**Precursors:**  
*(Course Code and Title)* Nil

**Equivalent Courses:**  
*(Course Code and Title)* Nil

**Exclusive Courses:**  
*(Course Code and Title)* Nil

## Part II Course Details

### 1. Abstract

(A 150-word description about the course)

Statistics play a pivotal role in public health research and practice. Biostatistics is the application of statistical tools and methods to health and biological data, which are continuously recorded through medical observations and epidemiological studies. This course provides the graduate students in public health and epidemiology with the basic knowledge and skills required in collection, management, visualization, and analysis of health data. Key concepts in statistical inference and hypothesis testing will be covered. This course will enable students to understand, describe, and visualize health data sets, design experimental studies, conduct basic statistical analyses, and attain the necessary foundation for learning more sophisticated statistical methods.

### 2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs <sup>#</sup>	Weighting* (if applicable)	Discovery-enriched curriculum-related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1	To gain an understanding of the key statistical concepts applied to public health		✓	✓	
2	To collect, organize, and visualize public health and epidemiological data		✓	✓	✓
3	To make inferences about health-related parameters in different populations		✓	✓	✓
4	To design various types of clinical experiments and analyse the resultant data		✓	✓	✓

\* If weighting is assigned to CILOs, they should add up to 100%.

# Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

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 self-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.

### 3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.				Hours/week (if applicable)
		1	2	3	4	
Lectures	Lectures introduce the fundamental concepts and methods applied in biostatistics, including data collection, organization, and visualization, descriptive statistics, sampling (sample size and power), key concepts of probability, estimation of population parameters (proportions and means), experimental study designs, basic statistical tests of hypothesis.	✓	✓	✓	✓	1.5 h/week
Hands-on practical exercises	Hands-on, problem-based activities (data manipulation and analysis) will be conducted to facilitate the conceptual understanding, using Minitab & STATA		✓	✓	✓	1.5 h/week

### 4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.				Weighting*	Remarks
	1	2	3	4		
Classroom assessment	✓	✓	✓	✓	10%	This assessment will be based on the student's class participation
Midterm examination	✓	✓	✓		40%	This will include all topics covered by the end of Week 6
Final examination			✓	✓	50%	This will include all topics covered from Week 7 to the end of the semester
* The weightings should add up to 100%.					100%	

## 5. Assessment Rubrics

*(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)*

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C)	Failure (F)
1. Classroom assessment	The participation of students in the classes	Participation in >90% of the classes	Participation in 80-90% of the classes	Participation in 70-80% of the classes	Limited Participation in classes (<70%)
2. Midterm examination	The comprehension of the concepts and topics taught in the classes (end of Week 6), and ability to communicate that in the written format and using relevant computer software.	Students achieve $\geq 86\%$ of the mark in the examination	Students achieve $\geq 65$ and $< 86$ of the mark in the examination	Students achieve $\geq 50$ and $< 65$ of the mark in the examination (C letter grade is at least 50% or greater)	Students achieve $< 50\%$ of the mark in the examination
3. Final examination	The comprehension of the concepts and topics taught in the classes (from Week 7 to the end), and ability to communicate that in the written format and using relevant computer software.	Students achieve $\geq 86\%$ of the mark in the examination	Students achieve $\geq 65$ and $< 86$ of the mark in the examination	Students achieve $\geq 50$ and $< 65$ of the mark in the examination (C letter grade is at least 50% or greater)	Students achieve $< 50\%$ of the mark in the examination

**Part III Other Information** (more details can be provided separately in the teaching plan)

**1. Keyword Syllabus**

*(An indication of the key topics of the course.)*

Biostatistics; public health; data visualization, data analysis; experimental study design; statistical inference

**2. Reading List**

**2.1 Compulsory Readings**

*(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)*

1	Wayne W. Daniel & Chad L. Cross. 2013. Biostatistics: A Foundation for Analysis in the Health Sciences, Tenth Edition, Wiley. ISBN-13: 978-1118302798 <a href="http://docshare02.docshare.tips/files/22448/224486444.pdf">http://docshare02.docshare.tips/files/22448/224486444.pdf</a>
---	--

**2.2 Additional Readings**

*(Additional references for students to learn to expand their knowledge about the subject.)*

1	Burt Gerstman. 2014. Basic Biostatistics: Statistics for Public Health Practice, Second Edition; Jones & Bartlett Learning. ISBN-13: 978-1284036015
2	Dohoo, Ian Robert, S. Wayne Martin, and Henrik Stryhn. 2012. Methods in Epidemiologic Research. Charlottetown, P.E.I.: VER, Inc.