City University of Hong Kong
Course Syllabus

offered by Department of Biostatistics
with effect from Semester A 2023/24

Part I Course Overview

Course Title:	**Statistical Computing**
Course Code:	**BIOS5801**
Course Duration:	**1 semester**
Credit Units:	**3 CUs**
Level:	**P5**
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

Contemporary biostatistics and data analysis depend on a mastery of tools for computation, visualization, dissemination, and reproducibility, in addition to proficiency in traditional statistical techniques. The goal of this course is to provide training in the elements of a complete pipeline for data analysis using R. It is targeted to students with some data analysis experience.

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[#]	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Understand the importance of visualization, dissemination and reproducibility in data analysis	40%	√	√	
2.	Ability to provide a complete pipeline for data analysis using R	40%	√	√	√
3.	Appreciate the relevance of statistical computing for applications in public health	20%	√	√	√
		100%			

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	
Teaching	Learning through teaching based on lectures	√	√	√	3 hours/ week
Assignments	Learning through assignments allows students to develop hands-on skills involving data analysis using R	√	√	√	

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		
Continuous Assessment: 60%					
Assignments	√	√	√	30%	
Project	√	√	√	30%	
Examination: 40%					
Examination (duration: 2 hours)	√	√	√	40%	
				100%	

5. Assessment Rubrics

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

Applicable to students admitted in Semester A 2023/24 and thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Assignment	Problem solving skills	High	Significant	Moderate	Not even reaching marginal level
2. Project	Problem solving based on comprehensive understanding	High	Significant	Moderate	Not even reaching marginal level
3. Examination	Problem solving based on comprehensive understanding	High	Significant	Moderate	Not even reaching marginal level

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.)

Visualization, dissemination and reproducibility for data analysis using R.

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.	R for Data Science: Import, Tidy, Transform, Visualize, and Model Data by Hadley Wickham and Garrett Grolemund

2.2 Additional Readings

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

Nil