هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	**Biostatistics**
Course Code:	**2052201-3**
Program:	**Bachelor in Biotechnology**
Department:	**Biotechnology Department**
College:	**Faculty of sciences**
Institution:	**Taif university**
Version:	**V4**
Last Revision Date:	**3/1445 – 9/2023**

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours:					
3 (3 lec)					
2. Course type					
A.	☐ University	☐ College	☒ Department	☐ Track	☐ Others
B.	☒ Required		☐ Elective		
3. Level/year at which this course is offered: (4th Level/ Year 2)					
4. Course general Description:					
This course will introduce students to the basics of descriptive Statistics, Quantitative and Qualitative data, graphic presentation of data, measures of central tendency, measures of dispersion, probability rules, binomial distribution, Poisson distribution. normal distribution, correlation and regression analysis, Chi-square test, t test, and one way ANOVA.					
5. Pre-requirements for this course (if any)**:**					
202112-3, Introduction to Mathematics					
6. Co-requirements for this course (if any)**:**					
None					
7. Course Main Objective(s):					
This course will introduce students to the types of data (quantitative and qualitative), data summarization by suitable statistics, graphical presentation of data, and recognize the correlation and regression concepts, chi-square and t-tests, one way ANOVA.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100
2	E-learning		
3	Hybrid ● Traditional classroom ● E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Recognize different types of data and their graphical presentation	K5	Lectures Group discussions	Written Exam, Assignments
1.2	Outline the measure of central tendency and variation	K5	Lectures Group discussions	Written Exam, Assignments
2.0	**Skills**			
2.1	Practice data collection, organization, and interpretation	S3	Brain Storming, Group discussions	Written Exam, Assignmentss
2.2	Analyze the data of small projects	S4	Brain Storming, Group discussions	Written Exam, Assignments
3.0	**Values, autonomy, and responsibility**			
3.1				
3.2				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to descriptive statistics the types of data (quantitative and qualitative), summarize data by a suitable statistics, graphical presentation of data, measures of central tendency (mean – median -mode)	6
2.	Measures of dispersion (range – standard deviation – variance – standard	3
3.	Deviation – coefficient of variation – standard error)	6
4.	Correlation coefficient (Pearson and spearman) and line regression	3
5.	Conditional Probability & Total probability & Bayes' rule	3
6.	Random variables - Binomial distribution, Poisson distribution	6
7.	Normal distribution, Sampling distributions	3
8.	Confidence intervals of one and two population means and proportions.	6
9.	Tests of Hypothesis about means, proportions and paired data	3
10.	X2 distribution and their applications (goodness of fit – test for contingency – test for independence, One way ANOVA.	6
	Total	**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm exam1	Week 7	20%
2.	Periodical exam	Week 10	20 %
3.	Assignments	Week 11	10%
4.	Final exam	Week16	50%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Introduction to Biostatistics
Supportive References	Larry Winner, Department of Statistics University of Florida July 8, 2004, PDF online book. (English)
Electronic Materials	Biostatistics websites that contain various electronic materials, photos, Exercises for Biostatistics, https://academic.oup.com/biostatistics
Other Learning Materials	Biostatistics websites that contain various electronic materials, photos, Exercises for Biostatistics, https://academic.oup.com/biostatistics

	Online videos of Measuring the central tendency, Correlation coefficient, and line regression.

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	1. Lecture halls, containing white boards, and electronic monitors 2. The seats fit the number of students 3. Laboratories equipped with suitable numbers of computers
Technology equipment (projector, smart board, software)	1. Statistical software
Other equipment (depending on the nature of the specialty)	1. Wi-Fi internet connections

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	**Students**	**Direct**
Effectiveness of Students assessment	**Students**	**Direct**
Quality of learning resources	**Students**	**Direct**
The extent to which CLOs have been achieved	**Peer reviewer**	**Direct**
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**DEPARTMENT COUNCIL**
REFERENCE NO.	**6**
DATE	**5/11/2023**

قسم التقنية الحيوية بكلية العلوم
Biotechnology Department
TU جامعة الطائف TAIF UNIVERSITY