Course Specifications

Course Title:	Biostatistics
Course Code:	**PDS 541**
Program:	**Bachelor of Dentistry [BDS]**
Department:	**Preventive Dental Sciences [PDS]**
College:	**College of Dentistry**
Institution:	**Majmaah University**

Table of Contents

A. Course Identification

1. Credit hours: 1	

2. Course type

a. University ☐ College **X** Department ☐ Others ☐

b. Required **X** Elective ☐

3. Level/year at which this course is offered: 5th Year - 1st Semester

4. Pre-requisites for this course (if any)**:** PDS 132

5. Co-requisites for this course (if any)**:NA**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	100	100%
2	**Blended**	NA	NA
3	**E-learning**	NA	NA
4	**Correspondence**	NA	NA
5	**Other - Practical**	NA	NA

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	**15**
2	**Laboratory/Studio**	-
3	**Tutorial**	-
4	**Others (specify)**	-
	Total	**15**
Other Learning Hours*		
1	**Study**	**30**
2	**Assignments**	**5**
3	**Library**	**5**
4	**Projects/Research Essays/Theses**	-
5	**Others** (specify)	-
	Total	**40**

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

This one -credit hour course consists of one lecture per week. This course provides students with an understanding of concepts, principles and methods of biostatistics for dental research with emphasis on using major software packages for data analysis. Practical applications of utilizing biostatistical methods to analyze common epidemiological oral health problems in the community are part of this course. Special focus is given to basic statistical methods required to design, conduct and interpret data for community-targeted dental public health programs. Reading assignment of literature followed by class discussion is a regular activity in this course.

2. Course Main Objective

The main objective of this course is providing knowledge of basic principles in biostatistics for critical appraisal of research or epidemiological studies, synthesis and integration of epidemiologic research, and causal inference in research. At the end of course the students will be able to design, conduct, and analyze of research

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
K3.34	Recall the basic concepts of sample selection, data collection and interpretation of results needed for the research.	K3
K4.5	Describe the knowledge and understanding from scientific research to practice evidence-based dentistry.	K4
2	**Skills :**	
S4.9	Implement the principles of research methodology to evaluate the prevalence of diseases in community and the effectiveness of preventive measures.	S4
3	**Competence:**	
C4.5	Employ modern technology and informatics in dental practice.	C4

C. Course Content

No	List of Topics	Contact Hours
1	**Introduction to Biostatistics in Dentistry** Introducing Biostatistics in Dentistry, Assessment and evaluation system	1 Theory
2	**Sampling methods** Sampling, terminologies, classification and different methods	2 Theory
3	**Data, type and methods of representation** Definition, different types of data, different ways of representation of data.	2 Theory
4	**Measures of Central tendency and Dispersion** Central tendency measures, mean, median and mode with dispersion types	2 Theory
5	**Tests of significance** Chi square test, z test, t test and ANOVA.	1 Theory
6	**Rates and Proportions** Prevalence and Incidence, sensitivity and specificity, odds ratio.	1 Theory
7	**Probability** Terminology and laws of probability.	1 Theory
8	**Correlation and Regression** Types and Calculations of correlation and calculation of regression.	1 Theory
9	**Designing and Methodology of a Study** Steps , methodology and format	2 Theory
10	**Demography and Vital Statistics** Terminology and various vital statistics	1 Theory
11	**Computers in Dentistry** Its importance, uses and its advantages in the field of dentistry	1 Theory
	Total	**Theory 15**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1	**Knowledge**		
K3.34	Recall the basic concepts of	Lecture	▪ Written exam.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	sample selection, data collection and interpretation of results needed for the research.		
K4.5	Describe the knowledge and understanding from scientific research to practice evidence-based dentistry.	Lecture	▪ Written exam.
2	**Skills**		
S4.9	Implement the principles of research methodology to evaluate the prevalence of diseases in community and the effectiveness of preventive measures.	Lecture	▪ Written exams. ▪ Assignments.
3	**Competence:**		
C4.5	Employ modern technology and informatics in dental practice.	Discussion	▪ Research projects.

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid- term exam	Week 6	40
2	Quiz	Week 4 and 8	5
3	Professionalism	During the course	5
4	Assignment	During the course	10
5	Final Theory Exam	End of semester	40

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Two (2) hours are scheduled as office hours per week.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Methods in Biostatistics, 7th edition By: B K Mahajan
Essential References Materials	Oral health journals

Electronic Materials	http://www.sdl.edu.sa
Other Learning Materials	none

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lecture rooms should be large enough to accommodate 30 students.
Technology Resources (AV, data show, Smart Board, software, etc.)	Computer, projector, smart board, video set connected to projector.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	NA

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	✓ Course Evaluation Survey ✓ Quality of Exam Survey
	Faculty	✓ CLO Mapping with teaching & assessment. ✓ Course Blueprinting ✓ Grade Analysis ✓ Psychometric Analysis
	Peers	✓ Grade Verification
Extent of achievement of course learning outcomes	Faculty member / Quality assurance committee	✓ Direct assessment outcome analysis ✓ Course report preparation
Quality of learning resources, etc	Students / Faculty	✓ Academic advising survey ✓ Student experience survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	**Department Council**
Reference No.	
Date	**30/08/1440**