

Republic of Yemen
Ministry of Higher Education & Science Research
Emirates International University



Faculty of Dentistry
Department of Basic science
Doctor of Dental Surgery
Course Specification of
Biostatistics
Course No. (-----)



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Review committee:

Head of the Department

Quality Assurance head

Dean of Faculty



I. Course Identification and General Information:

1	Course Title:	Biostatistics			
2	Course Code & Number:	----			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		2	2	--	--
4	Study Level/ Semester at which this Course is offered:	2 nd Level / 1 st Semester			
5	Pre –Requisite (if any):	None			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Doctor of Dental Surgery			
8	Language of Teaching the Course:	English			
9	Study System:	Semester based System			
10	Mode of Delivery:	Full Time			
11	Location of Teaching the Course:	Faculty of Dentistry			
12	Prepared by:	Dr. Turki AL-qabbani			

II. Course Description:

This course is designed to acquire students with basic principles of statistics and how to deal with different data at various clinical settings and researches. Also this course focuses on descriptive inferential statistics as applied to health sciences student. Upon completing this course, students will be able to understand graphs and how to read them, transform raw data to furnished data that can be analyzed and interpreted, make inference about the population from the collection and analysis of sample data.

III. Course Intended Learning Outcomes (CILOs) : Upon successful completion of the course, students will be able to:		Referenced PILOs Learning out of program	
A. Knowledge and Understanding:		I, A or E	
a1	Recall the basic concepts of sample selection, data collection and interpretation of results needed for the research.	A3	
a2	Identify the types of variables, method of collecting data and hypothesis	A3	
a3	Describe the knowledge and understanding from scientific research to practice evidence-based dentistry.	A3	
B. Intellectual Skills:			
b1	Analysis the data and tabulation and interpret the results.	B2	
b2	Impart basic principles of biostatistics into research.	B2	
C. Professional and Practical Skills:			
c1	Implement the principles of research methodology to evaluate the prevalence of diseases in community and the effectiveness of preventive measures.	C4	
c2	Apply the different methods of data processing and analysis.	C4	
D. Transferable Skills:			
d1	Employ modern technology and informatics in dental practice.	D2	
d2	Performing survey observations, data collection which is a fundamental part in the team work experience.	D3	

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:		
Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
a1	<ul style="list-style-type: none"> ▪ Lectures ▪ Discussion 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Midterm exam

			<ul style="list-style-type: none"> ▪ Final exam
a2	Identify the types of variables, method of collecting data and hypothesis	<ul style="list-style-type: none"> ▪ Lectures ▪ Discussion 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Midterm exam ▪ Final exam
a3	Describe the knowledge and understanding from scientific research to practice evidence-based dentistry.	<ul style="list-style-type: none"> ▪ Lectures ▪ Discussion 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Midterm exam ▪ Final exam
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
b1	Analysis the data and tabulation and interpret the results.	<ul style="list-style-type: none"> ▪ Lectures ▪ Discussion 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Midterm exam ▪ Final exam
b2	Impart basic principles of biostatistics into research.	<ul style="list-style-type: none"> ▪ Lectures ▪ Discussion 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Midterm exam ▪ Final exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
c1	Implement the principles of research methodology to evaluate the prevalence of diseases in community and the effectiveness of preventive measures.	<ul style="list-style-type: none"> ▪ Discussion ▪ Seminars 	<ul style="list-style-type: none"> ▪ Research ▪ Homework ▪ Group work
c2	Apply the different methods of data processing and analysis.		
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Employ modern technology and informatics in dental practice.	<ul style="list-style-type: none"> ▪ Discussion ▪ Self-Learning ▪ Presentation ▪ Seminars 	<ul style="list-style-type: none"> ▪ Research ▪ Homework ▪ Group work
d2	Performing survey observations, data collection which is a fundamental part in the team work experience.	<ul style="list-style-type: none"> ▪ Discussion ▪ Self-Learning ▪ Presentation ▪ Seminars 	<ul style="list-style-type: none"> ▪ Research ▪ Homework ▪ Group work

IV. Course Contents:					
A. Theoretical Aspect:					
No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Introduction	<ul style="list-style-type: none"> ▪ Concept of statistical and biostatistics ▪ Types of data and information <p>Types of variables, difference between nominal and ordinal , differences between discrete and continuous</p>	1 st	2	a1,a2
2	Sampling methods	<ul style="list-style-type: none"> - Method of collecting data - Random sample and randomization - Sampling and non-sampling errors - Survey condition 	2 nd	2	a1,b1
3	Describing data by table	<ul style="list-style-type: none"> • Relative, cumulative and percentage frequency for ungrouped data tables <p>Relative, cumulative and percentage frequency for grouped data tables</p>	3 rd	2	a2,b1,b2
4	Describing data by chart	<ul style="list-style-type: none"> • Charting ungrouped data by, pie, simple, clustered, stacked bar, step chars, time series <p>Charting grouped data by histogram, carve and ogive</p>	4 th	2	a3,b2
5	Describe data by numeric value	<ul style="list-style-type: none"> - Measure of location and dispersion - Mode, median, means, range, variance, standard deviation and coefficient of variation 	5 th -6 th	4	a1,a2,b1
6	Midterm exam	Prevalence and Incidence, sensitivity and specificity, odds ratio.	7 th	2	a1,a2,b1, b2
7	Correlation	<ul style="list-style-type: none"> - Linear relationship between two variables(rxy) - Types of correlation coefficient, R2 	8 th -9 th	4	a2,a3, b2
8	Regression	<ul style="list-style-type: none"> • Simple leaner regression model Equation regression using it in diagnostics 	10 th	2	a2,a3,b1
9	Introduction to hypothesis testing	<ul style="list-style-type: none"> • Test hypothesis, null and alternative hypothesis • Significance level and p-value • Test the population mean when the population standard deviation is known <p>Inference the population mean when the population standard deviation is unknown (T and Z test)</p>	11 th -12 th	4	a3,b2
10	Introduction to	<ul style="list-style-type: none"> - Inference about the differences 	13 th -14 th	4	a3,b2

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
	hypothesis testing	between two means: independent sample – Inference about the differences between two means: matched pairs experiment chi-square test – F-test analysis of variance sample			
11	Revision		15 th	2	a1,a2,b1, b2
12	Final Exam		16 th	2	a1,a2,a3, b1, b2,
Number of Weeks /and Units Per Semester			16	32	

V. Teaching Strategies of the Course:

- Lectures
- Discussion
- Seminars
- Presentation
- Self-Learning

VI. Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Exam
- Research
- Homework
- Group work

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Seminar Research Homework Group work	5 th -10 th	5	c1, c2, d1, d2
Total			5	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Attendance and Activities	15 th	5	5%	a1, a2, a3, b1, b2
2	Assignments	5 th -10 th	5	5%	c1, c2, d1, d2
3	Quizzes 1 & 2	4 th , 12 th	10	10%	a1, a2, a3, b1, b2
4	Midterm Exam	7 th	20	20%	a1, a2, b1, b2
5	Final Exam	16 th	60	60%	a1, a2, a3, b1, b2
Total			100	100%	

IX. Learning Resources:

1- Required Textbook(s) (maximum two):

- 1- Daniel, wayne and cross. C,L. (2013). Biostatistics: A fundamental for analysis in the health sciences, student solution manual. 10th edition, John wiley, Canada.
- 2- David Bowers (2008). Medical statistics from scratch an introduction for health professionals, Johan wiley and Sons, England.

2- Essential References:

- 1- Kanishka Bhattachary (2004). Introduction to statistics for medical students, University of Oxford.
- 2- David, Michael J, Compbell, Stephen J. 2007. Meical Statistics: A Textbook for the Health Sciences. 4th edition, Johan wiley and Sons, England.

3- Electronic Materials and Web Sites etc.:

<http://www.MikeMiddleton.com>

X. Course Policies: (Based on the Uniform Students' By law (2007))

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time and shall not

	leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

Faculty of Dentistry

Department of Basic science

Doctor of Dental Surgery

Course Plan (Syllabus) of Biostatistics

Course No. (-----)

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member:		Office Hours					
Location & Telephone No.:							
E-mail:		SAT	SUN	MON	TUE	WED	THU

II. Course Identification and General Information:

1	Course Title:	Biostatistics			
2	Course Code & Number:	----			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		2	2	--	--
4	Study Level/ Semester at which this Course is offered:	2nd Level / 1st Semester			
5	Pre –Requisite (if any):	None			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Doctor of Dental Surgery			
8	Language of Teaching the Course:	English			
9	Study System:	Semester based System			
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This course is designed to acquire students with basic principles of statistics and how to deal with different data at various clinical settings and researches. Also this course focuses on descriptive inferential statistics as applied to health sciences student. Upon completing this course, students will be able to understand graphs and how to read them, transform raw data to furnished data that can be analyzed and interpreted, make inference about the population from the collection and analysis of sample data.

IV. Course Intended Learning Outcomes (CILOs) :

Upon successful completion of the Course, student will be able to:

A. Knowledge and Understanding:	
a1	Recall the basic concepts of sample selection, data collection and interpretation of results needed for the research.
a2	Identify the types of variables, method of collecting data and hypothesis
a3	Describe the knowledge and understanding from scientific research to practice evidence-based dentistry.
B. Intellectual Skills:	
b1	Analysis the data and tabulation and interpret the results.
b2	Impart basic principles of biostatistics into research.
C. Professional and Practical Skills:	
c1	Implement the principles of research methodology to evaluate the prevalence of diseases in community and the effectiveness of preventive measures.
c2	Apply the different methods of data processing and analysis.
D. Transferable Skills:	
d1	Employ modern technology and informatics in dental practice.
d2	Performing survey observations, data collection which is a fundamental part in the team work experience.

V. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Introduction	<ul style="list-style-type: none"> ▪ Concept of statistical and biostatistics ▪ Types of data and information Types of variables, difference between nominal and ordinal , differences between discrete and continuous	1 st	2
2	Sampling methods	<ul style="list-style-type: none"> – Method of collecting data – Random sample and randomization – Sampling and non sampling errors – Survey condition 	2 nd	2
3	Describing data by table	<ul style="list-style-type: none"> • Relative, cumulative and percentage frequency for ungrouped data tables Relative, cumulative and percentage	3 rd	2

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
		frequency for grouped data tables		
4	Describing data by chart	<ul style="list-style-type: none"> Charting ungrouped data by, pie, simple, clustered, stacked bar, step chars, time series Charting grouped data by histogram, carve and ogive 	4 th	2
5	Describe data by numeric value	<ul style="list-style-type: none"> – Measure of location and dispersion – Mode, median, means, range, variance, standard deviation and coefficient of variation 	5 th -6 th	4
6	Midterm Exam	Prevalence and Incidence, sensitivity and specificity, odds ratio.	7 th	2
7	Correlation	<ul style="list-style-type: none"> – Linear relationship between two variables(rxy) – Types of correlation coefficient, R2 	8 th -9 th	4
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10	Introduction to hypothesis testing	<ul style="list-style-type: none"> – Inference about the differences between two means: independent sample – Inference about the differences between two means: matched pairs experiment chi-square test – F-test analysis of variance sample 	13 th -14 th	4
11	Revision		15 th	2
12	Final Exam		16 th	2
Number of Weeks /and Units Per Semester			16	32

VI. Teaching Strategies of the Course:

- Lectures
- Discussion
- Seminars
- Presentation
- Self-Learning

VII. Assessment Methods of the Course:

- Quizzes
- Midterm Exam
- Final Exam
- Research
- Homework
- Group work

VIII. Assignments:

No.	Assignments	Week Due	Mark
1	Seminar	5th -10th	5
	Research		
	Homework		
	Group work		
Total			5

IX. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Attendance and Activities	15 th	5	5%
2	Assignments	5 th -10 th	5	5%
3	Quizzes 1 & 2	4 th ,12 th	10	10%
4	Midterm Exam	7 th	20	20%
5	Final Exam	16 th	60	60%
Total			100	100%

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Biostatistics

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