Ministry of Higher Education and Scientific Research - Iraq
Al-Nahrain University
College of Science
Applied Pathological Analysis Department

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسي ة			
Module Title	Biostatistics		**Module Delivery**
Module Type	Support		**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**
Module Code	CRBIOSTA		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	2	**Semester of Delivery**	4
Administering Department	Applied Pathological Analysis	**College**	College of Science
Module Leader	Eman Khaled Khalaf	**e-mail**	eman.khalid@nahrainuniv.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	Master's
Module Tutor	Eman Khaled Khalaf	**e-mail**	eman.khalid@nahrainuniv.edu.iq
Peer Reviewer Name	Eman Khaled Khalaf	**e-mail**	eman.khalid@nahrainuniv.edu.iq

Scientific Committee Approval Date	18-1-2025	**Version Number**	1.0

Relation with others Modu **العلاقة مع المواد الدراسية الأخر ى**			
Prerequisite module	None	**Semester**	None
Co-requisites module	None	**Semester**	None

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims **أهداف المادة الدراسية**	The course aims to provide the student with knowledge and understanding of biostatistics, and to understand how to find the mean, median and mode, and to know how to find frequency tables and standard deviations and in what field statistics are introduced to a range of statistical tools relevant to scientists. Specific topics include an overview of statistical distributions, significance testing, uncertainty determination, linear regression and experimental design. Particular emphasis is placed on the application of statistics to quality control and practical experience in the application of widely used statistical features. Teaching methods will be a combination of lectures, self-study and any combination of discussion, case study and problem-solving exercises
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	1. Describe the basic statistical terms relevant to the field of analytical sciences. Identify the types of statistics 2- Identify how statistics is applied and in which field it is used 3- Know the application of statistics in our daily lives and how to draw functions 4- Display data graphically and summarize them numerically using appropriate tables, graphs, and measures of center, spread, and position. 5- Conduct interventions on population parameters using sample statistics using confidence interval estimates and statistical hypothesis tests. 6- Describe the application of statistics to sampling, quality control, validation of analytical method, and experimental design. 7- Use an appropriate method to analyze relationships between variables in a data set

Indicative Contents **الإرشادية المحتويات**	1-Describe basic statistical terms relevant to the field of analytical science Introduction to statistical terms Population and samples Statistical description of data Display data graphically and summarize them numerically using . tables, graphs, and measures of center, spread, and position2-appropriate Graphical representation of data including frequency tables and graphs • 3- Explain and apply the concepts of basic statistical distributions . Normal distribution • Correlation • T-distribution and T-test • Z-distribution and Z-test • Introduction to hypothesis testing • Probability theory • Moments • Finding measures of central tendency • •

Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**			
Strategies	The teaching methods used will be a combination of online lectures, self-study, online practical workshops and any combination of discussion, case study and problem-solving exercises. The practical component will be delivered separately to students in their different study groups (Biomedical Sciences/Medical Biotechnology, Forensic Sciences, Pharmaceutical Sciences) so that the examples used in the practical application of statistics can be tailored to suit their field of study.		
Student Workload (SWL) الحمل الدراسي للطال ب			
Structured SWL الحمل الدراسي المنتظم للطالب (h/sem) خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	الحمل الدراسيUnstructured SWL (h/w) غير المنتظم للطالب أسبوعيا	11
Total SWL (h/sem)			

الحمل الدراسي الكلي للطالب خلال الفصل	100

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	continouse	LO #1, 2, and 3
	Assignments	1	10% (10)	continouse	LO # 4 and 6
	Seminar	1	10% (10)	continuous	
	Report	1	10% (10)	continouse	LO # 5 and 7
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظر ي

	Material Covered
Week 1	• Introduction to BioStatistical and some Basic concepts
Week 2	• Methodes of presentation of data
Week 3	• Measures of Central Tendency , Arithmetic Mean, mode, Median.
Week 4	• Measures of Variability, The Range, Variance and Standard Deviation
Week 5	• Sample of randome sampling.
Week 6	• Probability theory.
Week 7	• Comulative distribution.
Week 8	•The Normal Distribution

Week 9	• the one exam
Week 10	• moment , skewness and kurtosis.
Week 11	• Introduction to Hypothesis Testing
Week 12	• Z- test for the mean
Week 13	• T - test for the mean
Week 14	• Regression
Week 15	• the final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• Modern Mathematical Statistics with Applications, Jay L. Devore, Kenneth N. Berk, Springer, 2012.	كلا
Recommended Texts	• Mathematical Statistics with Applications", 7th edition, by Wackerly, Mendenhall & Scheaffer	كلا
book	• https://en.wikipedia.org/wiki/Biostatistics	
Websites	• Introduction to statistics, by Ronald E. Walpole. • Mathematical Statistics with Applications, Dennis D. Wackerly, William Mendenhall III, Richard L. Scheaffer, Thomson Brooks, 2008.	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	**امتياز**	90 - 100	Outstanding Performance
	B - Very Good	**جيد جدا**	80 - 89	Above average with some errors
	C – Good	**جيد**	70 - 79	Sound work with notable errors
	D - Satisfactory	**متوسط**	60 - 69	Fair but with major shortcomings
	E - Sufficient	**مقبول**	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	**راسب)قيد المعالجة(**	(45-49)	More work required but credit awarded
	F – Fail	**راسب**	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي