MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Statistics**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**Che-24024**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Chem		**College**	CoS	
Module Leader	Suhad Kareem Hamid		**e-mail**	Suhadkareem@uodiyala.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Providing the student the skills of understanding, applying and analyzing statistical and probability measures in quantitative and descriptive data in various administrative fields , Giving the graduate the skills of collecting, presenting and analyzing data in order to extract and draw conclusions about the various phenomena under study , Use of statistical methods in different fields
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Enable students to obtain knowledge and understanding of advanced mathematics Enable students to obtain knowledge and understanding of the structure of statistic Enable students to obtain knowledge and applying and analyzing statistical and probability measures , Solving issues related to scientific material, writing scientific reports and analyzing data , Giving lectures and using textbooks ,knowledge skills – remembering, the skills of recall and analysis ,skills of use and modeling
Indicative Contents المحتويات الإرشادية	The statistics course for second-year Chemistry students covers an introduction to statistics and its importance in scientific data analysis, types of data and methods of presentation, measures of central tendency (mean, median, mode), and measures of dispersion (range, standard deviation). It also includes basic probability concepts, probability distributions—especially the normal distribution—correlation and simple linear regression, and hypothesis testing using the t-test. The course emphasizes practical applications in chemistry, such as analyzing experimental results and instrument readings.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Power point lecture method using data show and whiteboard.

	Explanation and clarification. Providing students with the basics and additional topics related to the outputs of mathematics thinking and analysis. Forming discussion groups during lectures to discuss mathematics topics that require thinking and analysis. Asking students a set of thinking questions during the lectures such as what, how, when and why for specific topics. Giving students homework that requires self-explanations in causal ways.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	47	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	28	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**75**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7

	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	8	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	events, elementary concepts and rules about probabilities, random events,types of random events, regular events ,and methods of calculating probabilities
Week 2	independent events , dependents events, the constitution of total probabilities
Week 3	conditional probabilities, totality and Bayesian theory, numerical computation methods, permutation and combinations
Week 4	definition of random variable, mathematical and statistical definition
Week 5	discrete random variable (intermittent),probability distribution and probability density function
Week 6	continuous random variable (continuous)), probability distribution and probability density function
Week 7	the statistical features of the random variable (expectation, variance and standard deviation)
Week 8	**Midterm Exam**
Week 9	probability distribution function, probability density function
Week 10	probability distributions, binomial distribution, cumulative distribution function for binomial distribution
Week 11	Poisson probability distribution
Week 12	normal distribution law, standard normal distribution
Week 13	Estimating the parameters of a distribution, method of movement
Week 14	maximum likehood, least squares

Week 15	**Final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introduction to Mathematical Statistics Hogg & Criug Elements of Mathematical Stats. Ractliffe	Yes
Recommended Texts	www.mathwords.com	No
Websites	www.freebookcentre.net	

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.