Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	**Khabat Technical Institute**	
Department	**Medicinal Plants Production**	
Module Name	**Statistics and experiments Design**	
Module Code	**EAD304**	
Degree	**Technical Diploma** [√] **Bachler** [ ] **High Diploma** [ ] **Master** [ ] **PhD** [ ]	
Semester	**Three**	
Qualification	**MSc**	
Scientific Title	**Assistant Professor**	
ECTS (Credits)	**6**	
Module type	**Prerequisite** [ ] **Core** [√] **Assist.** [ ]	
Weekly hours	**4 hr**	
Weekly hours (Theory)	**(1) hr Class**	**( ) Total hrs Workload**
Weekly hours (Practical)	**(3) hr Class**	**( ) Total hrs Workload**
Number of Weeks	**12**	
Lecturer (Theory)	**Hemn Othman Salih**	
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Lecturer (Practical)	**M. Hemn Othman Salih** **Dr. Ismail Anwer Said** **M. Shwan Muhamad Baper**	
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Websites	https://moodle.epu.edu.iq/course/view.php?id=2277

Course Book

Course Description	This course offers lecture and online interaction to provide a foundation in statistics concepts. The statistics is the Science of collection, presentation, analysis, and reasonable interpretation of data. Statistics presents a rigorous scientific method for gaining insight into data. For example, suppose we measure the weight of 100 patients in a study. With so many measurements, simply looking at the data fails to provide an informative account. However statistics can give an instant overall picture of data based on graphical presentation or numerical summarization irrespective to the number of data points. Besides data summarization, another important task of statistics is to make inference and predict relations of variables.
Course objectives	The educational Objectives of this Course are: 1. You will be prepared for more advanced courses in multiple regression and analysis of variance. 2. You will be prepared for more advanced courses in multiple regression and analysis of variance 3. .You will learn and appreciate the sensation of quantification. 4. You will be prepared for more advanced courses in multiple regression and analysis of variance. 5. You will learn and appreciate the sensation of quantification 6. . We will help each other so that no one will fail. 7. You will be prepared for more advanced courses in multiple regression and analysis of variance. 8. You will learn and appreciate the sensation of quantification. 9. We will help each other so that no one will fail.You will fall in love with statistics! 10. Make skills in probability equation's solving 11. Beside the theoretical part, there will be practical part that includes the training on the SPSS program.

	This subject will give the students the ability to make a match with other subject in future like the Cryptography and Security tasks.
Student's obligation	Students are asked to do mandatory the following duties during the 12 weeks of the semester: 1- Quiz. 2- Homework. 3- Seminars. 4- Semester report. 5- Lab. activity.
Required Learning Materials	The use of the following methods in the teaching process: 1. Data Show 2. Presentation 3. Course book 4. Lecturer Bound 5. Patient Magic
Evaluation	Homework, Class Activity, Report, Seminar, Quiz, Lab., Midterm Exam, Final Exam
Specific learning outcome:	On successful completion of the course, the student will: 1. **Distinguish types of studies and their limitations and strengths,** 2. **Describe a data set including both categorical and quantitative variables to support or refute a statement,** 3. **Apply laws of probability to concrete problems,** 4. **Perform statistical inference in several circumstances and interpret the results in an applied context,** 5. **Use mathematical tools, including calculus and linear algebra, to study probability and mathematical statistics and in the description and development of statistical procedures,** 6. **Use a statistical software package for computations with data,** 7. **Use a computer for the purpose of simulation in probability and statistical inference, and** **Communicate concepts in probability and statistics using both technical and non-technical language.**

Course References:	**1- Key references:** 2- Everything You Wanted to Know about Statistics but Were Afraid to Ask , Andrew L. Luna Director,Institutional Research, Planning, and Assessment, The University of North Alabama, alluna@una.edu , Phone: 256.765.4221 3- *Essential Medical Statistics*. Kirkwood & Sterne, 2nd Edition. 2003 4- *Background to Statistics for Non-Statisticians*. Powerpoint Lecture. Dr. Craig Jackson , Prof. Occupational Health Psychology , Faculty of Education, Law & Social Sciences, BCU. *ww.hcc.uce.ac.uk/**craigjackson**/Basic%20**Statistics**.ppt.* 5- **Useful references**: 6- Notes 13.4 Mutually exclusive and Inclusive events.pdf 7- http://ocw.tufts.edu/Content/1/lecturenotes/193325 8- http://stattrek.com/AP-Statistics-1/Association.aspx?Tutorial=AP **9-** http://udel.edu/~mcdonald/statcentral.html

Course topics (Theory) Course topics (Practical): Implementation by computer	**Week**	**Learning Outcome**
Statistics: introduction, definitions.	1	Descriptive & Inferential Statistics A Taxonomy of Statistics
Statistical Measurements: Central Measures.	2	Mean Mode Median
Statistical Measurements: Measures of Dispersion	3	Range Mean Deviation Standard deviation Variance Coefficient of variation Standard Error
Graphical data presentation	4	Bar chart Scatter plots Line graph Pie chart Histogram

One Sample & Paired T-test	5	Single t-test, Paired t-test
Non-paired T-test	6	Non-paired (grouped) t-test
Chi-square	7	Equation application
Correlation	8	Equation application
One way ANOVA	9	Equation application
Completely Randomized Design (CRD)	10	Basic Statistical Procedures: (SPSS)
Least Significant Design (LSD)	11	Basic Statistical Procedures: (SPSS)
Completely Randomized Block Design (CRBD)	12	Basic Statistical Procedures: (SPSS)

Questions Example Design

Theory:

Q)/ From the following data, (5, 90, 95, 85, 110, 100) find Abnormal values?

Q/ From the following data, find Average of the student?

Lesson	Kurdish	Crop	Soil	Computer	Design	Landscape
Mark	60	90	50	64	71	55
Unit	8	4	4	6	4	4

Q) Find the Inter-Quartile Range from the table

Student Marks	Frequency
10 – 16	2
16 – 22	8
22 – 28	10
28 – 34	8
34 – 40	2

Practical:

Q) from table below, Show incomes as (low, median and high) incomes

a. Low income between (400 – 699)
b. Median income between (700 – 900)
c. High income > 900

Family No.	1	2	3	4	5	6	7	8	9	10
Incomes	1000	500	600	900	500	700	700	800	600	650

Q/Analysed the level of Protein from 6 samples of Wheat by using spectrophotometer and titration, does there is differences between this two methods or not?
If the t-table is (2.57) Xi_1 (10, 9, 10, 8, 6, 15), Xi_2 (6, 10, 5, 4, 5, 7).

Q / From the following data, find (15, 10, 20, 10, 25, 5)

1- S^2 2- C.V 3- SE 4- Me 5- S

Extra notes:

Assist. Prof. Lecturer
Hemn Othman Salih

External Evaluator: