The University of Jordan

الجامعة الاردنية

Form: Course Syllabus	Form Number	EXC-01-02-02A
	Issue Number and Date	2/3/24/2022/2963 05/12/2022
	Number and Date of Revision or Modification	
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	Number of Pages	08

1.	Course Title	statistics for the health sciences
2.	Course Number	0301132
3.	Credit Hours (Theory, Practical)	3
	Contact Hours (Theory, Practical)	3
4.	Prerequisites/ Corequisites	None
5.	Program Title	BSc. Mathematics
6.	Program Code	
7.	School/ Center	Science
8.	Department	Mathematics
9.	Course Level	Basic
10.	Year of Study and Semester (s)	1st year, 1st semester
11.	Other Department(s) Involved in Teaching the Course	None
12.	Main Learning Language	English
13.	Learning Types	☐Face to face learning ☐Blended ■Fully online
14.	Online Platforms(s)	■Moodle ■Microsoft Teams
15.	Issuing Date	6/10/2024
16.	Revision Date	

17. Course Coordinator:

Name: Iman ALdarawi	Contact hours: 9:300-10:30 am (Sun,Tue, Thu)
	8:30-9:30 am (Mon, Wed)
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18. Other Instructors:

Name: Prof. Ahmad Zghoul

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19. Course Description:

This course emphasizes on the nature and characteristics of the most commonly used statistical techniques (descriptive statistics, t-test, Chi-Square, and elementary hypothesis testing), and their applicability to specific health care problems within the context of medicine. Students develop skills and knowledge in the use of computing software and to reinforce learning through course work and assignments, including the analysis of data.

20. Program Student Outcomes (SO's):

(To be used in designing the matrix linking the intended learning outcomes of the course with the intended

learning outcomes of the program)

1. Identify, formulate, and solve broadly-defined technical or scientific problems by applying knowledge of Mathematics and Science and/or technical topics to areas relevant to the discipline.
2. Formulate or design a system, process, procedure or program to meet desired needs.
3. Develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.
5. Reflect the impact of technical and/or scientific solutions in economic, environmental, and societal contexts.
7. Utilize research methods, critical and creative thinking skills to assess and analyze information) to solve problems properly, then draw valid reasoning and logical conclusions leading to true consequences.

21. Course Intended Learning Outcomes (CLO's):

(Upon completion of the course, the student will be able to achieve the following intended learning outcomes)

1. Understand the basic statistical concepts and their application to health care Research.
2. Comprehend the conceptual basis of statistical inferences.
3. Differentiate between parametric and nonparametric tests and comprehend their underlying assumptions.
4. Decide what statistical technique will provide the best answer to a given research question.
5. Develop and understand the necessary computer skills using a software such as SPSS, MINITAB, or EXCEL in order to conduct basic statistical analyses.
6. Critically analyze and critique selected quantitative research reports and make judgment on the accuracy of the statistical techniques employed on those reports.

Course CLOs	The learning levels to be achieved					
	Remembering	Understanding	Applying	Analysing	evaluating	Creating
1	●	●	●			
2		●	●	●	●	●
3	●	●	●			
4		●	●	●	●	●
5			●	●	●	
6	●	●	●	●	●	●

22. The matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program:

Program SO's / Course CLO's	SO (1)	SO (2)	SO (3)	SO (4)	SO (5)	SO (6)	SO (7)	SO (8)
CLO (1)	●							
CLO (2)	●	●	●		●			
CLO (3)	●	●	●		●			
CLO (4)	●	●	●		●		●	
CLO (5)	●	●	●		●		●	
CLO (6)	●	●	●		●		●	

23. Topic Outline and Schedule:

Week	Lecture	Topic	CLO/s Linked to the Topic	Learning Types (Face to Face/ Blended/ Fully Online)	Platform Used	Synchronous / Asynchronous Lecturing	Evaluation Methods	Learning Resources
1	1.1	Welcoming students. Syllabus. Introducing the course, how to study and practice, and the assessment methods.		Fully online	Microsoft teams	synchronous	Exam	Text Book
	1.2	General overview	1	Fully online	Microsoft teams	synchronous	Exam	Text Book
	1.3	2.2 Measures of Location (Mean, Median, and Mode)	1,2,4,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
2	2.1	2.3 Some Properties of the Mean	1,2,4,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	2.2	2.4 Measures of Spread (Range, Quantiles & IQR, Variance and Standard Deviation)	1,2,4,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	2.3	2.5 Some Properties of the Variance and Standard Deviation	1,2,4,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
3	3.1	2.6 The Coefficient of Variation	1,2,4,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	3.2	2.8 Graphic Methods (Bar graph, Histogram, Box Plot).	1,2,4,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	3.3	3.1 Introduction 3.2 Definition of Probability	1,2,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
4	4.1	3.1 Introduction 3.2 Definition of Probability	1,2,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	4.2	3.3 Some Useful Probabilistic Notation	1,2,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	4.3	3.4 The Multiplication Law of Probability	1,2,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
5	5.1	3.5 The Addition Law of Probability	1,2,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	5.2	3.6 Conditional Probability	1,2,5	Fully online	Microsoft teams	synchronous	Exam	Text Book

	5.3	3.7 Bayes' Rule and Screening Tests	1,2,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
6	6.1	4.2-4.5 Random Variables, the probability-mass function, expected value, and the variance of a discrete random variable.	1,2,4,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	6.2	4.8-4.9 The Binomial Distribution and its mean & variance.	1,2,4,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	6.3	5.3 -5.5 The normal distribution, properties of the standard normal distribution, conversion from non-standard to standard normal distribution.	1,2,4,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
7	7.1	5.3 -5.5 The normal distribution, properties of the standard normal distribution, conversion from non-standard to standard normal distribution.	1,2,4,5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	7.2	6.2 The Relationship between Population and Sample	1,2,3,4, 5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	7.3	6.5 Estimation of the Mean of a Distribution (population mean), mean and variance of the sample mean, standard error of the mean, CLT, Interval estimation for μ.	1,2,3,4, 5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
8	8.1	6.8 Estimation for the Binomial Distribution (population proportion), interval estimation of 3 p.	1,2,3,4, 5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	8.2	7.2 General Concepts	1,2,3,4, 5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	8.3	7.3-7.4 One-Sample Test for the Mean of a Normal Distribution: One-Sided and Two-Sided Alternatives.	1,2,3,4, 5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
9	9.1	7.7 Sample-Size Determination (Based on CI length).	1,2,3,4, 5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	9.2	7.9 One-Sample Inference for the Binomial Distribution	1,2,3,4, 5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	9.3	8.2 The Paired t Test 8.3 Interval Estimation for the Comparison of Means from Two Paired Samples	1,2,3,4, 5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book

10	10.1	8.2 The Paired t Test 8.3 Interval Estimation for the Comparison of Means from Two Paired Samples	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	10.2	8.4 Two-Sample t Test for Independent Samples with Equal Variances	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	10.3	8.5 Interval Estimation for the Comparison of Means from Two Independent Samples (Equal Variance Case)	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
11	11.1	10.2 Two-Sample Test for Binomial Proportions	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	11.2	10.2 Two-Sample Test for Binomial Proportions	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	11.3	10.6 R x C Contingency Tables	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
12	12.1	10.7 Chi-Square Goodness-of-Fit Test	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	12.2	11.7 The Correlation Coefficient	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	12.3	11.8 Statistical Inference for Correlation Coefficients.	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
13	13.1	12.1 Introduction to the One-Way Analysis of Variance	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	13.2	12.2 One-Way ANOVA-Fixed-Effects Model	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	13.3	12.3 Hypothesis Testing in One-Way ANOVA-Fixed-Effects Model	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
14	14.1	12.3 Hypothesis Testing in One-Way ANOVA-Fixed-Effects Model	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	14.2	12.4 Comparisons of Specific Groups in One-Way ANOVA	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
	14.3	12.4 Comparisons of Specific Groups in One-Way ANOVA	1,2,3,4,5,6	Fully online	Microsoft teams	synchronous	Exam	Text Book
15	15.1	Overall Applications and Case Studies Using SPSS or MINITAB	5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	15.2	Overall Applications and Case Studies Using SPSS or MINITAB	5	Fully online	Microsoft teams	synchronous	Exam	Text Book
	15.3	Overall Applications and Case Studies Using SPSS or MINITAB	5	Fully online	Microsoft teams	synchronous	Exam	Text Book

24. Evaluation Methods:

Opportunities to demonstrate achievement of the CLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	CLO/s Linked to the Evaluation activity	Period (Week)	Platform
Midterm exam	30	From ch1 up to ch5		8	Exam builder
Second exam	30	From ch6 up to ch8		11	Exam builder
Final	40	From ch1 up to ch12		Final exams period	Exam builder

25. Course Requirements:

(e.g.: students should have a computer, internet connection, webcam, account on a specific software/platform…etc.):

Microsoft Teams account.

26. Course Policies:

General Course Policies:

Attendance Policy: Attendance is expected. Arrival on time is expected. Students who miss more than three class sessions with or without excuse will be dismissed from the course automatically. (See the university policies regarding absence).

Cell Phone Policy: Cell phones should be turned off during class time. Disruption of class by ringing cell phones and cell phone conversations is inconsiderate of fellow students and faculty.

Examination Policy: Students unable to take a scheduled exam are expected to inform the instructor within 3 days and make arrangements for a make-up one. Make ups will be given only to students who have notified the instructor and set up an alternate time. Any missed exam will result in a grade of zero for that particular examination type.

Academic Integrity: Work submitted to the course instructor is assumed to be an expression of original ideas by the student. All students in this course are expected to adhere to university standards of academic integrity. Appropriate citation of the intellectual property of other authors is expected. Cheating, plagiarism, and other forms of academic dishonesty will neither be accepted nor tolerated. This includes, but is not limited to, consulting with another person during an exam, turning in written work that was prepared by someone other than you, and making minor modifications to the work of someone else and turning it in as your own. Ignorance will not be permitted as an excuse. If you are not sure whether

something you plan to submit would be considered either cheating or plagiarism, it is your responsibility to ask for clarification.

Communications: Contact by an email is highly encouraged and preferred. Other than contacts by an email, contacts should take place during announced office hours and/or ONLY by appointment. Contact on phones, preferably office number, also is welcomed during working hours.

27. References:

A- Required book(s), assigned reading and audio-visuals:

Rosner, B. (2016), Fundamentals of Biostatistics. Cengage Learning.

B- Recommended books, materials, and media:

1) Daniel, W. (2005). Biostatistics: A foundation for analysis in the health sciences. New Jersey: John Wiley & Sons Inc.
2) Winner, L. (2004). Introduction to Biostatistics. Florida: Department of Statistics; University of Florida. 3) Munro, B. (2012). Statistical methods for health care research (6th ed.). Philadelphia: Lippincott.
3) Green, S., & Salkind, N. (2005). Using SPSS for Windows and Macintosh: Analyzing and understanding
4) data (4th ed.). Upper Saddle River, NJ: Pearson – Prentice Hall.

28. Additional information:

	Signature:	Date:
Name of the Instructor or the Course Coordinator: **Iman ALdarawi**	....	....
Name of the Head of Quality Assurance Committee/ Department: **Prof. Manal Ghanem**	....	....
Name of the Head of Department: **Prof. Baha Alzalg**	....	....
Name of the Head of Quality Assurance Committee/ School of Science; **Prof. Emad A. Abuosba**	....	....
Name of the Dean or the Director: **Prof. Mahmoud I. Jaghoub**	....	....