Jordan University of Science and Technology
Faculty of Applied Medical Sciences
Radiologic Technology Department

RA793 Advanced Biostatistics
First Semester 2024-2025

Course Catalog
2 Credit Hours. The course will give an overview of the basic tools for the collection, analysis, and presentation of data. The topics covered will include descriptive statistics; hypothesis testing; methods for comparison of discrete and continuous data including ANOVA, t-test, correlation, chi-squared analysis, linear and logistic regression, and non-parametric approaches.
Teaching Method: Blended

Text Book	
Title	Designing Clinical Research
Author(s)	Stephen B. Hulley, Steven R. Cummings, Warren S. Browner, Deborah G. Grady, Thomas B. Newman. (2015).
Edition	4th Edition
Short Name	1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	Essentials of Biostatistics in Public Health (Essential Public Health)	Lisa M. Sullivan	3rd Edition	
3	Epidemiology	Gordis, L.	5th Edition	

Class Schedule & Room

Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Introduction to biostatistics	From **1**, From **2**, From **3**
Week 2	Biostatistics, Data, and Sampling 1	From **1**, From **2**, From **3**
Week 3	Biostatistics, Data, and Sampling 2	From **1**, From **2**, From **3**
Week 4	Descriptive statistics: Measures of central tendency and measures of variability and Normal distribution 1	From **1**, From **2**, From **3**
Week 5	Descriptive statistics: Measures of central tendency and measures of variability and Normal distribution 2	From **1**, From **2**, From **3**
Week 6	Descriptive statistics: Measures of central tendency and measures of variability and Normal distribution 2	From **1**, From **2**, From **3**
Week 7	Estimation of population parameters (mean, proportion, the difference between two means, and the difference between two proportions)	From **1**, From **2**, From **3**
Week 8	Hypothesis testing: Introduction, One-sample test, proportion test, Two-sample test (independent samples), and paired t-test	From **1**, From **2**, From **3**
Week 9	Hypothesis testing: Introduction, One-sample test, proportion test, Two-sample test (independent samples), and paired t-test	From **1**, From **2**, From **3**
Week 10	Introduction to SPSS 1	From **1**, From **2**, From **3**
Week 11	Introduction to SPSS 2	From **1**, From **2**, From **3**
Week 12	Specificity and sensitivity	From **1**, From **2**, From **3**
Week 13	SPSS Applications	From **1**, From **2**, From **3**
Week 14	SPSS Applications	From **1**, From **2**, From **3**

Week 15	SPSS Applications	From **1**, From **2**, From **3**
Week 16	Revision	From **1**, From **2**, From **3**

Mapping of Course Outcomes to Program Outcomes	**Course Outcome Weight (Out of 100%)**	**Assessment method**
Apply numerical and tabular techniques commonly used to characterize and summarize data	20%	
Describe basic principles of key concepts including hypothesis testing, type I and type II errors, power, and confidence bounds	20%	
Identify appropriate statistical methods (ANOVA, correlation, linear regression, logistic regression) to be applied in a given research setting, apply these methods, and acknowledge the limitations of those methods.	20%	
Apply SPSS principles	20%	
Evaluate computer output containing statistical procedures and interpret it.	20%	

Relationship to Program Student Outcomes (Out of 100%)												
PLO B1	PLO B2	PLO B3	PLO B4	PLO B5	PLO B6	PLO B7	PLO M1	PLO M2	PLO M3	PLO M4	PLO M5	PLO M6

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