Jordan University of Science and Technology

Faculty of Science & Arts

Mathematics Department

MATH132 Elements Of Biostatistics

Second Semester 2020-2021

Course Catalog
3 Credit Hours. Biological data, descriptive statistics, probability, axioms and rules of probability, conditional probability, Bayes theorem and independence, discrete and continuous random variables, Binomial and normal distributions, Sampling distribution point and interval estimation, hypothesis testing, types of error, tests for one and two means, test for one proportion, categorical data analysis, incidence and prevalence, contingency tables; diagnostic tests; false positive, false negative; odds ratio and relative risk, specificity and sensitivity, chi-square test of independence, life tables, correlation and simple regression.

Text Book	
Title	Biostatistics: A Foundation for Analysis in the Health Sciences, 9th Edition, John Wiley
Author(s)	Wayne Daniel,
Edition	9th Edition
Short Name	TextBook
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref #1	Fundamentals of Biostatistics,	B. Rosner	8th Edition	
Ref #2	The Analysis of Biological Data	Michael C. Whitlock (Author), Dolph Schluter (Author)	2nd Edition	

Instructor	
Name	**Dr. HANAN HAMMOURI**
Office Location	Ph4 level 0

Office Hours	Sun : 13:30 - 15:00 Mon : 11:30 - 13:00 Wed : 12:00 - 14:00 Thu : 11:00 - 12:00
Email	hmhammouri@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue : 10:00 - 11:30 Room: 150 منصة الكترونية

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Introduction to biostatistics & data analysis sample space, events, counting sample points, probability of an event, additive rules	
Week 2	Conditional probability, independent events, multiplicative rules	
Week 3	Concept of a random variable, discrete probability distributions, continuous probability distributions	
Week 4	Mean of a random variable, variance, means & variances of a linear combination of random variables	
Week 5	Binomial distribution, Normal distribution, areas under the normal curve, applications of both	
Week 6	Random sampling, some important statistics	
Week 7	Sampling distributions, the sampling distribution of means	
Week 8	Introduction to estimation, statistical inference, estimating the mean, standard error	
Week 9	Estimating the difference between two means, estimating a proportion,	
Week 10	Statistical hypotheses, testing a statistical hypothesis	
Week 11	One- and two-tailed tests, tests concerning a single mean, tests on a single mean when the variance is unknown	
Week 12	Tests on two means, test on a single proportion,	
Week 13	Categorical data analysis, incidence and prevalence,	
Week 14	Contingency tables; diagnostic tests; false positive, false negative; odds ratio and relative risk, specificity and sensitivity,	

Week 15	Chi-square test of independence, life tables	
Week 16	Simple linear regression and correlation	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Using basic counting techniques to compute probability by applying general probabilities rules. [2SLO1, 1SLO2]	20%	MIDTERM exam, Quizzes, Final
Understanding the concept of a random variable and Setting up and working with discrete and continues distributions. [2SLO1, 1SLO2]	20%	MIDTERM exam, Quizzes, Final
Using point estimate and interval estimate to make inference on population parameters Using hypothesis testing to answer a question about the population parameters. [1SLO1, 3SLO3, 1SLO5]	35%	Quizzes, Final
Categorical data analysis, incidence and prevalence, Contingency tables; diagnostic tests; false positive, false negative; odds ratio and relative risk, specificity and sensitivity, [1SLO1, 3SLO3, 1SLO5]	15%	Quizzes, Final
Evaluating the linear relationship using correlation and simple linear regression. And using the last to make a future predictions. [1SLO1, 1SLO2, 2SLO3]	10%	Quizzes, Final

Relationship to Program Student Outcomes (Out of 100%)					
SLO1	SLO2	SLO3	SLO4	SLO5	SLO6
39.17	15.83	35		10	

Evaluation	
Assessment Tool	**Weight**
MIDTERM exam	26%
Quizzes	24%
Final	50%

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