Jordan University of Science and Technology

Faculty of Science & Arts

Mathematics Department

MATH331 Statistical Methods(1)
First Semester 2022-2023

Course Catalog
3 Credit Hours. Simple linear regression: estimation and inference, prediction, residual analysis, multiple regression, estimation and statistical inference, criteria for choosing best model. The concept and applications of experimental design, single factor experiments, randomized designs, block and incomplete block designs, two factor experiments (completely randomized design,.2-way ANOVA).

Text Book	
Title	Applied Linear Statistical Models
Author(s)	Michael H. Kutner
Edition	5th Edition
Short Name	TextBook
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref 1	Design and Analysis of Experiment	Douglas C. Montgomery	6th Edition	

Instructor	
Name	**Dr. Mahmoud Smadi**
Office Location	PH2 L1
Office Hours	Sun : 12:30 - 13:30 Mon : 12:00 - 13:00 Tue : 12:30 - 13:30 Wed : 10:30 - 12:30 Thu : 12:30 - 13:30
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Class Schedule & Room
Section 1: Lecture Time: Sun, Tue, Thu : 10:30 - 11:30 Room: SF11

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
903300	MATH330 Mathematical Statistics	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	The simple linear regression model: model description.	
Week 2	Estimation and testing.	
Week 3	Model diagnostics.	
Week 4	The multiple linear regression model: model description and estimation.	
Week 5	Hypothesis testing.	
Week 6	Model selection.	
Week 7	Multicolinearity and model diagnostics.	
Week 8	Experimental Design: basic principles	
Week 9	Simple comparative experiments, two independent samples and paired t-tests.	
Week 10	Experiments with a single factor: 1-WAY ANOVA, fixed effects model	
Week 11	Multiple comparisons.	
Week 12	Single factor, random effect model.	
Week 13	2-WAY ANOVA.	
Week 14	Completely randomized block design Incomplete randomized block design.	
Week 15	Review	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understanding and fitting simple linear regression model and multiple regression model and perform model selection and model diagnostics. [1SLO1, 1SLO2, 2SLO3, 1SLO5]	35%	
Understanding and Fitting 1-WAY ANOVA, fixed effect model and random effect model. And interpreting the results. [1SLO1, 1SLO2, 2SLO3, 1SLO5]	25%	

Fitting and analyzing 2-WAY ANOVA, fixed effect model. And interpreting the results. [1SLO1, 1SLO2, 2SLO3, 1SLO5]	20%	
Analyze a data using randomized complete and incomplete block designs. [1SLO1, 1SLO2, 2SLO3, 1SLO5]	20%	

Relationship to Program Student Outcomes (Out of 100%)					
SLO1	SLO2	SLO3	SLO4	SLO5	SLO6
20	20	40		20	

Evaluation	
Assessment Tool	**Weight**
First Exam	30%
Second Exam	30%
Final Exam	40%

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