



Course Specification

— (Postgraduate)

Course Title: Order Statistics

Course Code: 202666-3

Program: M.Sc. in Statistics

Department: Mathematics and Statistics

College: Science

Institution: Taif University

Version: 2023

Last Revision Date: 7/4/1445



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A. General information about the course:

1. Course Identification:

1. Credit hours: (3)

2. Course type

A. University College Department Track

B. Required Elective

3. Level/year at which this course is offered: (N/A)

4. Course general Description:

Order statistics – Distribution of an order statistic (continuous case) - Joint distribution of two order statistics (continuous case) - Properties of order statistics - Distribution of the median- range- and some other statistics- Moments of order statistics- order statistics from some specific distributions (uniform distribution- exponential distribution and normal distribution) - Order statistics in statistical inference (estimation and prediction)

5. Pre-requirements for this course (if any):

6. Pre-requirements for this course (if any):

7. Course Main Objective(s):

After careful study of this course, student should be able to do the following:

1. Understand concepts of order statistics.
2. Determine the Distribution of an order statistic and Joint distribution of two order statistics (continuous case).
3. Determine the distribution of the median- range- and some other statistics- Moments of order statistics.
4. Determine the order statistics from some specific
5. Determine the Order statistics in statistical inference (estimation and prediction)





2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning		

3. Contact Hours: (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify).....	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods:

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Recognize the fundamentals of the order statistics	K1	<ul style="list-style-type: none"> Lectures Group discussions 	<ul style="list-style-type: none"> Quizzes Exams Assignments
1.2	Outline Properties of order statistics	K2	<ul style="list-style-type: none"> Lectures Group discussions 	<ul style="list-style-type: none"> Quizzes Exams Assignments
1.3	Outline Distribution of the median-range- and some other statistics- Moments of order statistics- order statistics from some specific distributions	K2	<ul style="list-style-type: none"> Lectures Group discussions 	<ul style="list-style-type: none"> Quizzes Exams Assignments



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.4	Describe the distribution of an order statistic (continuous case) - Joint distribution of two order statistics (continuous case)	K3	<ul style="list-style-type: none"> Lectures Group discussions 	<ul style="list-style-type: none"> Quizzes Exams Assignments
2.0	Skills			
2.1	Apply the studied methods to find the distribution of an order statistic (continuous case) - Joint distribution of two order statistics (continuous case)	S2	<ul style="list-style-type: none"> Lectures Group discussions 	<ul style="list-style-type: none"> Quizzes Exams Assignments
2.2	Evaluate the estimation and prediction of the order statistics for some specific distributions and then compare between estimators.	S4	<ul style="list-style-type: none"> Lectures Group discussions 	<ul style="list-style-type: none"> Quizzes Exams Assignments
3.0	Values, autonomy, and responsibility			
3.1	Participate effectively within groups and independently.	V1	Projects	Through the oral presentation of the projects.
3.2	Express mathematical and statistical ideas orally and in writing	V4	Projects	Through the oral presentation of the projects.

C. Course Content:

No	List of Topics	Contact Hours
1.	Order statistics, Distribution of an order statistic (continuous case)	9
2.	Joint distribution of two order statistics (continuous case), Properties of order statistics	9
3.	Distribution of the median- range- and some other statistics, Moments of order statistics	9
4.	order statistics from some specific distributions (uniform distribution- exponential distribution and normal distribution)	9
5.	Order statistics in statistical inference (estimation and prediction)	9
Total		45





D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes + Homeworks+ oral presentation +written test+ group project	Continues	30%
2.	Final exam	16 th	70%

*Assessment A

ivities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities:

1. References and Learning Resources:

Essential References	Barry C. Arnold, N. Balakrishnan and H. N. Nagaraja. A First Course in Order Statistics, by the Society for Industrial and Applied Mathematic (2008).
Supportive References	H. A. David and H.N. Nagaraja. Order statistics, Wiley (2003).
Electronic Materials	
Other Learning Materials	Blackboard system

2. Educational and Research Facilities and Equipment Required:

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Lecture halls, containing white boards, and electronic monitors - The seats fit the number of students - Laboratories equipped with suitable numbers of computers
Technology equipment (Projector, smart board, software)	Data Show
Other equipment (Depending on the nature of the specialty)	Wi-Fi internet connections

F. Assessment of Course Quality:

Assessment Areas/Issues	Assessor	Assessment Methods
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Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of students assessment	Students	Indirect
Quality of learning resources	Students	Indirect
The extent to which CLOs have been achieved	Peer reviewer	Direct
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval Data:

COUNCIL /COMMITTEE	Department of Mathematics and Statistics
REFERENCE NO.	
DATE	7-4-1445H

