Course Specification

(Bachelor)

Course Title:	Elementary of Statistics and Probability
Course Code:	MTH1501
Program:	BSc. in Mathematics
Department:	Mathematics
College:	Al-Qunfudah University College
Institution:	Umm Al-Qura University
Version:	2
Last Revision Date:	17/07/2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (4)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (3/1)					
4. Course general Description:					
This course provides an elementary introduction to probability, statistical theory and methodology with applications. It contains the most basic tools for a good initiation to statistical methods. The course helps the students to establish an outstanding theoretical background for their future professions.					
5. Pre-requirements for this course (if any)**:**					
6. Pre-requirements for this course (if any)**:**					
7. Course Main Objective(s):					
Acquiring the basic knowledge and concepts of describing data statistically and elementary theory of probability.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	4	100 %
2	E-learning	0	0
3	Hybrid • Traditional classroom • E-learning	0	0
4	Distance learning	0	0

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	36
2.	**Laboratory/Studio**	0
3.	**Field**	0
4.	**Tutorial**	0
5.	**Others (***Exam, Quizzes, Activities…***)**	4
Total		40

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	**Define the concepts, principles and techniques in statistics and probability theory.**		**Lecture and Tutorials**	**Exams, quizzes**
1.2	**Describe basic statistical methodology of data analysis including; graphs, descriptive statistics.**		**Lecture and Tutorials**	**Exams, quizzes**
1.3	**List the addition and the multiplication rules of probability.**		**Lecture and Tutorials**	**Exams, quizzes**
2.0	**Skills**			
2.1	**Develop connections within branches of statistics and between statistical analysis and other disciplines.**		**Lecture and Tutorials**	**Exams, quizzes**
2.2	**Explain the counting rules.**		**Lecture and Tutorials**	**Exams, quizzes**
2.3	**Estimate the population parameter by the statistic.**		**Lecture and Tutorials**	**Exams, quizzes**
2.4	**Estimate the population parameter by the statistic.**		**Lecture and Tutorials**	**Exams, quizzes**
2.5	*Diagram the sample space.*		**Lecture and Tutorials**	**Exams, quizzes**
2.6	**Interpret the results of statistical problem and data analysis.**		**Lecture and Tutorials**	**Exams, quizzes**

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.0	**Values, autonomy, and responsibility**			
3.1	**Apply the computational and conceptual principles of calculus to the solutions of various mathematical problems.**		**Lecture/ Individual or group work**	**Exams, quizzes**
3.2	**Justify the choice of different steps in problem resolution procedure.**		**Lecture/ Individual or group work**	**Exams, quizzes**
3.3	**Solve problems using a range of formats and approaches in basic science.**		**Lecture/ Individual or group work**	**Exams, quizzes**
3.4	**Show the ability to work independently and within groups.**		**Lecture/ Individual or group work**	**Exams, quizzes**

C. Course Content

No	List of Topics	Contact Hours
1.	**Definition and general view of statistics and organization and presentation of statistical data.**	**2**
2.	**Measures of central tendency (Mean, Median, Mode) of the simple data and the frequency distribution.**	**6**
3.	**Measures of dispersion (The Range – The Variance and the standard deviation - Coefficient of variation) of the simple data and the frequency Distribution**	**6**
4.	**Moments and Measure of Skewness and Kurtosis**	**5**
5.	**Correlation measures and Simple Linear regression**	**6**
6.	**Sample space and Events**	**2**
7.	**Counting Techniques (Fundamental basics, Addition Rule – Multiplication Rule- Permutation and Combinations)**	**5**
8.	**Definition of the probability and its applications**	**2**
9.	**Conditional probability - Independence of events and Bayes theorem and its applications**	**6**
Total		**40**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	**Midterm exam**	**6th**	**30 %**

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
2.	Quizzes and homework's	During semester	20 %
3.	Final exam	End of semester	50 %

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	*Bluman, A. G. (2017). A Brief Version: Elementary Statistics: A Step by Step Approach. McGraw-Hill Education: tenth edition, ISBN: 1259755339*
Supportive References	*Probability and statistics for engineers and scientists, Ronald E. Walpole, Prentice Hall (2012).*
Electronic Materials	*None*
Other Learning Materials	*None*

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	**Classrooms**
Technology equipment (projector, smart board, software)	**Data Show, Smart Board**
Other equipment (depending on the nature of the specialty)	**None**

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	**Students**	**Courses Assessment survey**
Effectiveness of Students assessment		**Courses Assessment survey**
Quality of learning resources	**Students**	**Courses Assessment survey**
The extent to which CLOs have been achieved	**Faculty Member**	**Post-Rubric and Course report**
Periodically reviewing course effectiveness and planning for improvement	**Course committee**	**Annual report**

Assessment Areas/Issues	Assessor	Assessment Methods

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Curriculum Committees
REFERENCE NO.	**1**
DATE	17/07/2024