

**TISHK INTERNATIONAL UNIVERSITY
FACULTY OF EDUCATION
Department of PHYSICS EDUCATION,
2022-2023 Spring
Course Information for MATH 314 PROBABILITY AND STATISTICS I (Spring)**

Course Name:	PROBABILITY AND STATISTICS I (Spring)				
Code	Regular Semester	Theoretical	Practical	Credits	ECTS
MATH 314	6	3	-	3	5
Name of Lecturer(s):	Mowafaq Muhammed				
Teaching Assistant:	-				
Course Language:	English				
Course Type:	Non-area Elective				
Office Hours	2:30-4:30 sunday				
Contact Email:	mowafaq.muhammed@tiu.edu.iq				
	Tel:07710343401				
Teacher's academic profile:	PhD. in Mathematical Statistics				
Course Objectives:	The main objective of this course is to provide students with the foundations of probabilistic and statistical analysis mostly used in varied applications in engineering and science like disease modeling, climate prediction and computer networks etc. It introduces the basic notions of probability theory and develops them to the stage where one can begin to use probabilistic ideas in statistical inference and modeling and the study of stochastic process. The study of statistics is important in the elementary grades because societies frequently organize and expresses data numerically.				
Course Description (Course overview):	Basic concepts, frequency distributions, histogram and frequency polygon, graphic demonstration of categorical data and applications. Parametric and nonparametric measures of central tendency and applications. Parametric and nonparametric measures of dispersion and its applications. Skewness and kurtosis. Basic concepts of probability theory, addition and multiplication rule, Bayes theorem, probability distribution table, the expected values and practices. Basic concepts of discrete probability distributions, Binomial, Poisson and hyper-geometric distribution, and applied studies.				

COURSE CONTENT

Week	Hour	Date	Topic
1	3	29/1-2/2/2023	Introduction ,Sets and subsets
2	3	5-9/2/2023	Graphical Representation
3	3	12-16/2/2023	Frequency Distribution
4	3	19-23/2/2023	Measures of Central Tendency
5	3	26/2-2/3/2023	Measures of Variation, Coefficient of variation, Problems
6	3	5-9/3/2023	Probability: scope and examples of probability; sample spaces and events
7	3	12-16/3/2023	Conditional probability,
8	3	19-23/3/2023	Bay
9	3	26-30/3/2023	Definition of random variables, continuous and discrete random variables; probability density functions (pdf) and properties
10	3	2-6/4/2023	Midterm Exam
11	3	9-13/4/2023	Moment Generating Functions, expectation: mean, variance using moment generating function
12	3	16-20/4/2023	Examples and Problems
13	3	23-27/4/2023	Some Discrete Probability Distributions
14	3	30/4-4/5/2023	Some Discrete Probability Distributions
15	3	7-11/5/2023	Some Continues Probability Distributions
16	3	14-18/5/2023	Some Continues Probability Distributions
17	3	21-25/5/2023	Examples, Central limit theorem
18	3	28/5-1/6/2023	Final Exam
19	3	4-8/6/2023	Final Exam

COURSE/STUDENT LEARNING OUTCOMES

- 1 Learning sets, probability, calculating means and variances of given data.
- 2 Use measures of central tendency and graphs as an application.
- 3 Learn how to find the expected values and variances of random variables.
- 4 Applying probability discrete and continues distributions in the mathematical applications.
- 5 Analyzing statistical data for making decisions.

COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES

(Blank : no contribution, I: Introduction, P: Proficient, A: Advanced)

Program Learning Outcomes		Cont.	
1	Discuss concepts and principles of physics.	P	
2	Conduct proper experiments safely and interpret the data in physics teaching physics.	A	
3	Use the results of recent education and subject-specific developmental research when designing, implementing and justifying their own practice as a teacher.	P	
4	Apply analytical and theoretical skills to model and solve physics problems.	I	
5	Identify students' misconceptions and deal with them in classroom.	P	
6	Prepare physics lessons with appropriate learning materials and teaching methods.	I	
7	Effectively assess, plan, teach, organize, and manage physics classrooms.	A	
8	Use appropriate methods and techniques to improve students' critical thinking, creative thinking and problem-solving skills in physics.	I	
9	Use required modern methods and techniques for student-centered teaching by considering individual and cultural differences of students.	P	
10	Effectively use a variety of teaching technologies and techniques and classroom strategies to foster student learning.		
11	Communicate effectively and work collaboratively within the context of a global society.		
12	Exhibit character and decision-making skills embodying professionalism and ethical behavior.		
Prerequisites (Course Reading List and References):	Calculus I and Calculus II		
Student's obligation (Special Requirements):	Attending the class, Solve examples of the class, Submission home works, Solve extra problems		
Course Book/Textbook:	1.Introduction of Statistics, Ronald, E. Walpole. 2.Introduction to Mathematical Statistics, Robert ,V. Hogg, Allen, T. Craig 3.Introductory Statistics, Barbara Illowsky and Susan Dean. 4.Introduction to Probability and Statistics, Giri, 2nd edition, 1993		
Other Course Materials/References:	Online lecture notes ,my lecture notes		
Teaching Methods (Forms of Teaching):	Lectures, Practical sessions, Project, Assignments, , ,		
COURSE EVALUATION CRITERIA			
Method	Quantity	Percentage (%)	
Participation	1	5	
Quiz	2	10	
Homework	2	5	
Midterm Exam	1	25	
Final Exam	1	40	
Total		100	
Examinations: Essay Questions, Short Answers, Matching, , ,			
Extra Notes:			
ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD			
Activities	Quantity	Workload Hours for 1 quantity*	Total Workload
Theoretical Hours	19	3	57
Practical Hours	19	0	0
Final Exam	1	16	16
Participation	1	16	16
Quiz	2	2	4
Homework	2	3	6
Midterm Exam	1	4	4
Total Workload			103
ECTS Credit (Total workload/25)			4

Peer review

Signature:

Name:

Lecturer

Signature:

Name:

Head of Department

Signature:

Name:

Dean