The Hashemite University		**Probability Theory (2001011321) 3 Credit Hours**
Faculty of Science		**Pre-requisite: Calculus 3 (110101201)**
Department of Mathematics	**Course Syllabus**	**Second Semester 2022/2023**

Course Information	
Lecture's Time	Section (1): Sunday, Tuesday and Thursday 12:30-13:30 PM
Lecture's Room	المبنى : مجمع الحسين الباني – (وجاهي) – القاعة : ح ب 203
Instructor	Prof. Dr. Moustafa Omar Ahmed Abu-Shawiesh
Contact Me On	Office Phone: + 962-5-3903333 (Ext: 5067) E-mail: mabushawiesh@hu.edu.jo
Office Location	Mathematics Building / Room No. 313
Office Hours	10:00–11:00 AM & 11:00–12:00 PM Sunday, Tuesday and Thursday
Text Book	**Title:** Introduction to Probability and Mathematical Statistics **Authors:** Lee J. Bain & Max Engelhardt **Publisher:** Duxbury Press, Boston, USA, 1992, 2nd Edition.
Recommended Selected References	1. Probability and Mathematical Statistics by Hogg and Tanis. 2. Introduction to Probability and Statistics by Mendenhal. 3. A Course in Probability by Neil A. Weiss. 4. A First Course in Probability by Sheldon Ross. 5. Introduction to Probability by Anderson, Seppäläinen, and Valkó. 6. An Intermediate course in probability by Gut Allan. 7. An Introduction to Probability Theory and Its Applications by Feller.

Grading Policy	
First Exam: Tuesday 04 /04/ 2023 --- Time: 12:30 – 13:30 --- Room: (201 + 203)	30 %
Second Exam Tuesday 16 /05/ 2023 --- Time: 12:30 – 13:30 --- Room:(201 + 203)	30 %
Final Exam: Announced Later (During the period from 03/06/2023 to 15/06/2023)	40 %
Total	100 %

Description and Objectives of the Course

Course Description

This is a first course in undergraduate probability. The main goal of it is to introduce students to probability theory. It requires a solid knowledge of Calculus (III), and covers standard material such as probability, random variables, probability distributions, independence, conditional probability, expected value and moments, the functions of random variables and order statistics.

Course Objectives

- To acquaint students with probability and random variables.
- To acquaint students with some important discrete and continuous probability distributions.
- To explain and prove some important theorems in probability theory and their useful applications.
- To emphasize examples and applications from different disciplines in science.
- To derive results from probability theory that are important for statistical theory, such as distributions for order statistics.

Course Schedule	
Section Number	**Topics**
Chapter 1: Probability	
1.1	Introduction
1.2	Notations and Terminology
1.3	Definition of Probability
1.4	Some Properties of Probability
1.6	Conditional Probability
Chapter 2: Random Variables and their Distributions	
2.1	Introduction
2.2	Discrete Random Variables
2.3	Continuous Random Variables
2.4	Some Properties of Expected Values
2.5	Moment Generating Functions
Chapter 3: Special Probability Distributions	
3.1	Introduction
3.2	Special Discrete Distributions
3.3	Special Continuous Distributions
Chapter 4: Joint Distributions	
4.1	Introduction
4.2	Joint Discrete Distributions
4.3	Joint Continuous Distributions
4.4	Independent Random Variables
4.5	Conditional Distributions
4.6	Random Samples
Chapter 5: Properties of Random Variables	
5.1	Introduction
5.2	Properties of Expected Values
5.3	Correlation
5.4	Conditional Expectation
5.5	Joint Moment Generating Function
Chapter 6: Functions of Random Variables	
6.1	Introduction
6.2	The CDF Techniques
6.3	Transformation Methods
6.4	Sums of Random Variables
6.5	Order Statistics

Policy on Attendance, Participation and Incomplete Exams

Students are expected to attend and to participate actively in the class sessions. Attendance is absolutely mandatory. Students who miss 6 class sessions without a compelling excuse will qualify the student to be dismissed. ***"Incomplete for first, second and final exams are allowed only in circumstance of serious illness or other extreme situations. Documents are required, the instructor is expected to be notified as soon as possible for incomplete exam"***.

Important Points

- **Wednesday, 24/05/2023** is the last day to withdraw from the course. If a student wishes to withdraw from a course, it is the student's responsibility to meet the deadline for the last day to withdraw within the current semester.
- The minimum grade required to pass in this course is D.
- During the semester, I will try to response to your e-mail within 24 hours. E-mails sent after noon on Thursday will generally not be returned until Sunday—please plan accordingly.