UNITED INTERNATIONAL UNIVERSITY

COURSE SYLLABUS

1	**School**	School of Science & Engineering
2	**Department**	Department of CSE
3	**Program**	BSCSE [BSc in Computer Science & Engineering]
4	**Name of Course**	Probability and Statistics
5	**Course Code**	MATH 2205
6	**Trimester and Year**	Spring, 2021
7	**Pre-requisites**	Fundamental Calculus (MATH 1151)
8	**Status**	Supporting CSE Courses
9	**Credit Hours**	3.00
10	**Section**	A
11	**Class Hours**	Sat : 10:05 AM - 11:35 AM and Tue : 10:05 AM - 11:35 AM https://bdren.zoom.us/j/2806312774?pwd=T1RsTEFaRDRKQ2pOYVdiaEllTmVMUT09 Meeting ID: 280 631 2774 Password: 231286
12	**Class Location**	Room: 0410[-Permanent Campus] and Room: 0410[-Permanent Campus]
13	**Course website**	lms.uiu.ac.bd
14	**Name (s) of Academic staff / Instructor(s)**	Mahtab Uddin
15	**Contact**	mahtab@ins.uiu.ac.bd, 01550605560 & 01615605560
16	**Office**	Room # 635/A
17	**Counselling Hours**	Saturday 9:00am - 10:30am Tuesday 9:00am - 10:30am
18	**Text Book**	Probability and Statistical Inference – Hogg and Tenis (Pearson Education Asia)
19	**Reference**	Statistics – Spiegel, and Stephens (Schaum's Outline Series) Probability, Random Variables, & Random Processes – HWEI HSU (Schaum's Outline Series)
20	**Equipment & Aids**	Bring your own device (Any standard smartphone or tablet or laptop) to participate effectively in classroom activities. You are not allowed to borrow from others inside the classroom during class activities.
21	**Course Rationale**	This course helps to design data collection plans, analyze data appropriately and interpret and draw conclusions from those analyses. It also equips students with consequently requisite quantitative skills that they can employ and build on in flexible ways.
22	**Course Description**	Frequency distribution. Mean, median, mode and other measures of central tendency. Standard deviation and other measures of dispersion. Moments,

		skewness and kurtosis, correlation and regression analysis. Elementary probability theory and discontinuous probability distribution, e.g., binomial, Poisson and negative binomial. Continuous probability distributions, e.g. normal and exponential. Characteristics of distributions. Elementary sampling theory. Estimation of the parameter, Hypothesis testing.
23	**Course Objectives**	The course is designed to provide the background of the following topics 1. Define statistical data and focus on how to use them. 2. Analyze experimental and collected data using statistical method. 3. Explain description, interpretation and exploratory analysis of data by graphical and other means. 4. Discuss the fundamental probability theory and understand statistical reasoning and inferential methods. 5. Illustrate stochastic behavior of natural phenomena.
24	**Learning Outcomes**	After the end of this course, the students will be able to: 1. Analyze data using measures of central tendency, measures of dispersion, point estimation, interval estimation and hypothesis testing. 2. Compute probability of dependent and independent events. 3. Develop probabilistic models for discrete and continuous random variables. 4. Demonstrate relation between multiple random variables. 5. Assess confidence intervals, decisions on hypothesis testing.
25	**Teaching Methods**	Lecture, Question-Answer, Multimedia Projector.
26	**Topic Outline**	

	Class	Topics Or Assignments	CLOs	Reading Reference	Activities
	1-4	Elementary probability theory, Conditional probability, Bayes' theorem.	2	Chapter 1	Question-Answer
	5-8	Discrete Random Variables and discrete distributions.	3	Chapter 2	Question-Answer, Class Test-1
	9-12	Continuous Random Variables and continuous distributions.	3	Chapter 3	Question-Answer, Assignment-1, Class Test-2, Class Test-2.
	13-15	Statistical data analysis, Bi-variate distribution, Correlation & Regression.	1 & 4	Chapter 4	Question-Answer
	16-18	Point Estimation: Order Statistic, Maximum Likelihood Estimation, Bayesian Estimation.	5	Chapter 6	Question-Answer, Class Test-3
	19-20	Interval estimation.	5	Chapter 7	Question-Answer, Assignment-2, Class Test-4

	21-24	Hypothesis testing, Analysis of variances.	5	Chapter 8	Question-Answer, Class Test-5

27	**Assessment Methods**	**Assessment Type**	**Mark**
		Attendance	5%
		Class Tests	40%
		Assignments	10%
		Mid Term Exam	20%
		Final Exam	25%

28	**Grading Policy**	**Letter Grade**	**Marks %**	**Grade Point**	**Letter Grade**	**Marks%**	**Grade Point**
		A (Plain)	90-100	4.00	C+ (Plus)	70-73	2.33
		A- (Minus)	86-89	3.67	C (Plain)	66-69	2.00
		B+ (Plus)	82-85	3.33	C- (Minus)	62-65	1.67
		B (Plain)	78-81	3.00	D+ (Plus)	58-61	1.33
		B- (Minus)	74-77	2.67	D (Plain)	55-57	1.00
					F (Fail)	<55	0.00

29	**Additional Course Policies**	1. Class Attendance and Participation: Class attendance is mandatory (at 80% of classes) to qualify for grading as per university policy. But I will grade you on the basis of your in-time presence. So after taking attendance of the class (usually at the beginning of the class), there will be no provision for recording attendance. Your in-time presence will also be considered as positive class participation. 2. Examination: There is NO provision for the make-up of missed classes and quizzes. Expect a quiz on the completion of each topic. 3. Assignment Failure to submit the Assignments on the due date will result in a 50% deduction from the possible score. 4. Counseling: You are expected to follow the counseling time-table as set out in this course.
30	**Additional Info**	1. Academic Calendar Spring 2021: http://www.uiu.ac.bd/academic/calendar/ 2. Academic Information and Policies: http://www.uiu.ac.bd/academic/academic-information-policies/ 3. Grading and Performance Evaluation: http://www.uiu.ac.bd/academic/grading-performance-evaluation/ 4. Proctorial Rules: http://www.uiu.ac.bd/academic/1192-2/