

**COURSE INFORMATION**

1 .	<b>Name of Course</b>	Introduction to Probability and Statistics	
2 .	<b>Course Code</b>	PSM0325	
3 .	<b>Type of Course</b> (e.g. : Core, major, elective etc.)	Core	
4 .	<b>Synopsis</b>	This course introduces basic statistics and probability concept. Topics covered are types of statistics, presenting the data for grouped and ungrouped data. For the probability topics covered are concept of probability, types of probability, continuous and discrete probability distribution function, sampling distribution, estimation and hypothesis test.	
5 .	<b>Version</b> (State the date of the Senate's approval - previous and the current approval date)	Current: August 2017 Previous: June 2015	
6 .	<b>Name(s) of Academic Staff</b>	Mohd Daud Hassan, Mawar Madiyah	
7 .	<b>Semester and Year Offered</b>	Trimester 3	
8 .	<b>Credit Value</b>	3	
9 .	<b>Pre-Requisite</b>	Nil	
10 .	<b>Objective of the course in the programme:</b> To expose students to the basic topics in probability and statistics.		
11 .	<b>Justification for including the course in the programme:</b> To equip students with the basic concepts in probability and statistics.		
12 .	<b>Course Learning Outcomes (CLO)</b>	<b>Domain</b>	<b>Level</b>
	<b>CLO1:</b> Analyse the data.	Cognitive	Level 4
	<b>CLO2:</b> Calculate the probability of various problems and distributions.	Cognitive	Level 3
	<b>CLO3:</b> Calculate the summary measures.	Cognitive	Level 3
	<b>CLO4:</b> Interpret the population mean.	Cognitive	Level 2

13 .	<b>Mapping of the Course Learning Outcomes to the Programme Learning Outcomes, Teaching Methods and Assessment:</b>														
	<b>Course Learning Outcomes (CLO) (Must tally with CLOs in item 12)</b>	<b>Programme Learning Outcomes (PLO)</b>											<b>Teaching Methods</b>	<b>Assessment Method</b>	
		P L O 1	P L O 2	P L O 3	P L O 4	P L O 5	P L O 6	P L O 7	P L O 8	P L O 9	P L O 10	P L O 11			P L O 12
	CLO1	✓	✓				✓							Lecture, Tutorial	Quiz, Test, Final Examination
	CLO2	✓	✓				✓							Lecture, Tutorial	Quiz, Test, Final Examination
	CLO3	✓	✓				✓							Lecture, Tutorial	Quiz, Test, Final Examination
	CLO4	✓	✓				✓							Lecture, Tutorial	Quiz, Final Examination
	<b>Total</b>	<b>4</b>	<b>4</b>				<b>4</b>								
	<i>Indicate the relevancy between the CLO and PLO by ticking "✓" the appropriate relevant box (This description must be read together with standards 2.1.2, 2.2.1, and 2.2.2 in Area 2 – pages 16 &amp; 18 of COPPA 2.0)</i>														
14 .	<b>Transferable Skills:</b> Management, Team Work, Manipulative, Analytical														
15 .	<b>Distribution of Student Learning Time (SLT)</b>														
	<b>Course Content Outline</b>	<b>**CLO</b>	<b>Teaching and Learning Activities</b>				<b>Guided Learning (NF2F)*</b>	<b>Independent Learning (NF2F)*</b>	<b>Total SLT</b>						
			<b>Guided Learning (F2F)*</b>												
			<b>*L</b>	<b>*T</b>	<b>*P</b>	<b>*O</b>									
1	<b>Descriptive Statistics</b> Basic terms, types of statistics, population, sample, types of variables; Tabular presentation: Frequency, relative frequency, percentage and cumulative frequency distributions; Pictorial presentation: Bar chart, pie chart, histogram, frequency polygon and ogive; Measures of central tendency for ungrouped and grouped data; Measures of dispersion for ungrouped and grouped data.	<b>CLO1</b>	5	2			1	8	16						
2	<b>Events and Probability</b> Experiment and sample space, events and their occurrences; Multiplication rule, combinations, permutations; Set operations, venn diagram, tree diagram; Probability of an event, additive and multiplicative rules; Conditional probability; Independent events, mutually exclusive events, complement event..	<b>CLO2</b>	4	2			0	6	12						
3	<b>Random variables</b> Probability distributions of discrete random variable and continuous random variables; Cumulative distributions of discrete random variable and continuous random variables; Mean, variance, and standard deviation of discrete random variable and continuous random variables.	<b>CLO2</b>	4	2			0	6	12						

4	<b>Special Probability distributions</b> Discrete: Binomial and Poisson distributions; Probability formula, probability table, mean, variance, and standard deviation of Binomial and Poisson distributions; Continuous: Normal distribution, standard normal distributions, probability table; Applications to real problems.	<b>CLO2</b>	5	3		1	9	18
5	<b>Sampling Distributions</b> Mean, variance, and standard deviation of the sample mean, probability of the sample mean; Sampling error and non-sampling error; Sampling distributions of a sample mean when the population has a normal distribution; Sampling distributions of a sample mean when the population is not a normal distribution (Central Limit Theorem).	<b>CLO3</b>	2	1		0	3	6
6	<b>Estimation</b> Point estimation for population mean; Margin of error; Interval estimation for a population mean when the population has a normal distribution for a large sample; Interval estimation of a population mean when the population is not a normal distribution (Central Limit Theorem)	<b>CLO3</b>	2	1		0	3	6
7	<b>Hypotheses Testing</b> Null hypothesis, alternative hypotheses, significance level, critical value, rejection region, acceptance region, test statistics, critical-value method; Hypotheses testing for a population mean for a large sample.	<b>CLO4</b>	3	2		1	6	12
<b>Total SLT</b>								<b>82</b>
<b>SUMMATIVE ASSESSMENT</b>								
<b>1. Continuous Assessment</b>			<b>Percentage %</b>				<b>Total SLT</b>	
Quiz			20%				10	
Tests			30%				8	
			<b>Total SLT for Continuous Assessment</b>				<b>18</b>	
<b>2. Final Assessment</b>			<b>Percentage %</b>				<b>Total SLT</b>	
Final Exam			50%				<b>F2F</b>	<b>ILT</b>
							2	18
			<b>Total SLT for Final Assessment (F2F + NF2F)</b>				<b>20</b>	
<b>Grand Total</b>			<b>100%</b>				<b>120</b>	
**Indicate the CLO based on the CLO's numbering in Item 12.								
*L= Lecture, *T= Tutorial, *P= Practical, *O= Others, F2F*= Face to Face, NF2F*= Non Face to Face								
16	Identify Special Requirement to Deliver the Course (e.g., software, nursery, computer lab, simulation room): None							

17 .	<b>Main References:</b> Assliza, et al. (2011). Introduction probability and statistics. Pearson.
18 .	<b>Additional References:</b> Devore, J.L. (2012). Probability and statistics for engineering and the sciences (8th ed.). Boston: Brooks/Cole. Triola, M.F. (2014). Elementary statistics (12th ed.). Boston: Pearson Education, Inc. Weiss, N.A. (2012). Introductory Statistics (9th ed.). Boston: Pearson Education, Inc.

**Note:**

Cells shaded light grey contain formulas / fixed values. Edit these formulas only if needed.
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