FACULTY OF COMPUTER AND MATHEMATICAL SCIENCES

SCHEME OF WORK

COURSE : STATISTICS FOR BUSINESS AND SOCIAL SCIENCES (STA 404)

EFFECTIVE DATE : MARCH 2020

SEMESTER : October 2021 – January 2022

Week	Topics and Sub-Topics	No. of Hours	Remarks
1 [11/10 – 15/10]	**1.0 Introduction to Statistics** 1.1 What is Statistics 1.2 Descriptive and Inferential Statistics 1.3 Variable, Types of Data, and Level of Measurement 1.4 Data Collection Methods (telephone surveys, mailed questionnaire surveys, and personal interview) 1.5 Types of sampling (simple random sampling, stratified, systematic, cluster, convenience, quota, judgmental, and snowball) Tutorial	3 1	**Open and Distance Learning (ODL)**
2 [18/10 – 22/10]	**2.0 Descriptive Statistics** 2.1 Organizing data (bar chart, pie chart, stem and leaf, box whisker plot, frequency distribution table and histogram) 2.2 Numerical Descriptive Measures (ungrouped data) 2.1.1 Measures of Central Tendency (mean, median, mode) Tutorial	3 1	**Open and Distance Learning (ODL)**
3 [25/10 – 29/10]	2.1.2 Measures of Variation (range, standard deviation, variance, coefficient of variation) 2.1.3 Measure of Skewness 2.1.4 Measures of Position (Q1, Q2 and Q3) Tutorial	3 1	**Open and Distance Learning (ODL)**

4 [1/11 – 5/11]	**3.0 Estimation** 3.1 Sampling Distribution of the Mean 3.2 Interval Estimation for a Mean (covered both σ known and unknown) • Small sample • Large sample Tutorial	 3 1	**Open and Distance Learning (ODL)**
	3.3 Interval Estimation for the Difference Between Two Means (covered both σ known and unknown) • Small sample • Large sample Tutorial	 3 1	**Open and Distance Learning (ODL)**
6 [15/11 – 19/11]	3.4 Interval Estimation for the Difference Between Two Means (Dependent Sample) Tutorial	 3 1	**Open and Distance Learning (ODL)**
Midterm 22nd – 28th November 2021			**1 week**
7 [29/11 – 3/12]	**4.0 Hypothesis Testing** 4.1 Test of Mean Difference 4.1.1 Concept of Hypothesis 4.1.2 Testing for a Mean Tutorial **Assessment 1 : Take Home Quiz : Topic 1 – 3**	 2 0.5 1.5	**Open and Distance Learning (ODL)**

8 [6/12 – 10/12]	4.1.3 Testing the Difference Between Two Means (large sample) 4.1.4 Testing the Difference Between Two Means (independent variables) Equal variances. ($\sigma_1^2 = \sigma_2^2$) Tutorial	3 1	**Open and Distance Learning (ODL)**
9 [13/12 – 17/12]	4.1.5 Testing the Difference Between Two Means (independent variables) Unequal variances. ($\sigma_1^2 \neq \sigma_2^2$) Tutorial	3 1	**Open and Distance Learning (ODL)**
10 [20/12 – 24/12]	4.1.6 Testing the Difference Between Two Means (dependent sample) Tutorial	3 1	**Open and Distance Learning (ODL)**
Special Holiday 25th December – 2nd January 2022			**1 week**
11 [3/1 – 7/1]	4.1.7 Testing for the Difference Among More Than Two Means (One-Way Analysis of Variance) Tutorial	3 1	**Open and Distance Learning (ODL)**
12 [10/1 – 14/1]	4.2 Test for Independence Tutorial	3 1	**Open and Distance Learning (ODL)**
13 [17/1 – 21/1]	**5.0 Bivariate Analysis** 5.1 Correlation • Pearson product moment correlation coefficient 5.2 Simple linear regression • An overview of regression • Scatter diagram Tutorial **Assessment 3 : Group Project**	3 1	**Open and Distance Learning (ODL)**

14 [24/1 – 29/1]	• Discuss model and parameter estimation using method least of squares. • Make interpretation of the estimated parameters • Making prediction • Coefficient of determination, r^2 **Assessment 2** **Test : Topic 4 – 5**	2 2	**Open and Distance Learning (ODL)**
Revision Week **31st – 6th February 2022**			**1 week**
Final Assessment **(Assessment 4 : Topic 1 – 5)** **7th – 23rd February 2022**			**3 weeks**
Result Announcement **15th March 2022**			-
Semester Break **23rd February – 27th March 2022**			**5 weeks**

Assessment

1. Apply appropriate concepts and methods to solve given problems related to statistics for business and social sciences (C3).
2. Demonstrate communication skills in a group project on topics related to statistics for business and social sciences (A3).
3. Demonstrate lifelong learning skills in carrying out assignments related to statistics for business and social sciences (A3).

Assessment	Name of Assessment	Suggested Topic	Full Marks	Weighted	Total %	PLO	NOTE
1	Take Home Quiz	1 – 3	40	20%	20%	1,7	Duration Take Home Quiz : 1 hour Duration for Submission: 30 minutes
2	Take Home Test	4 – 5	50	30%	30%	1	Duration Take Home Test : 1 hour and 30 minutes Duration for Submission: 30 minutes
3	Group Project		50	10%	10%	4	30 days from the due submission date of the group project
4	Final Assessment (Take Home Test)	1 – 5	60	40%	40%	1	Duration Final Assessment: 2 hours Duration for Submission: 30 minutes
Total					100%		

Recommended Text

Allan G.Bluman, Elementary Statistics: A Step by Step Approach, 10th ed., McGraw-Hill Education, 2018, ISBN: 9781259922015

References

1. Kieth A. Carlson & Jennifer R. Winquist, An Introduction to Statistics: An Active Learning Approach, 2nd ed., SAGE Publications Inc., 2017, ISBN: 978148337873
2. Evan M. Berman & XiaoHu Wang, Exercising Essential Statistics, 4th ed., SAGE Publications Inc., 2017, ISBN: 978-150634895
3. Neil Weiss, Introductory Statistics, 10th ed., Pearson Education Inc., 2017, ISBN: 9780321989178
4. Ronald E.Walpole, Raymond H.Myers, Sharon L.Myers & Keying Ye, Probability and Statistics for Engineers and Scientist, 9th ed., Pearson Education Inc., 2017, ISBN: 978933251908
5. T. Rajaretnam, Statistics for Social Sciences, 1st ed., SAGE Publications, 2016, ISBN: 978935150655
6. Howard M. Reid, Introduction to Statistics, 1st ed., SAGE Publications Inc, 2013, ISBN: 9781452271965
7. Sheridan J. Coakes, SPSS: Analysis Without Anguish Using SPSS Version 20, 20th ed., John Wiley & Sons Inc., 2012, ISBN: 978111833776
8. Robert H.Carver & Jane Gradwohl Nash, Doing Data Analysis with SPSS®: Version 18.0, 5th ed., Cengage Learning, 2012, ISBN: 978084004916
9. John Murdoch & John Anthony Barnes, Statistical Tables for Students of Science, Engineering, Psychology, Business, Management, Finance, 4th ed., Macmillan Education, 1998, ISBN: 9780333558591