	Mahatma Gandhi University **Kottayam**

Programme	**Bachelor in Business Administration (Honours)**			
Course Name	Statistics for Business			
Type of Course	SEC			
Course Code	MG4SECBBA200			
Course Level	NA			
Course Summary	**Course Summary:** This course introduces students to the use of statistics in business. It helps learners understand how to collect, organize, analyse, and interpret numerical data to make better business decisions. The course also aims to build skills in using common statistical and graphical methods to study and understand data in different areas of management. **Course Objectives** 1. To introduce students to the fundamental concepts of statistics and its application in business decision-making. 2. To help learners understand and analyse business data over time using time series techniques. 3. To equip students with the skills to perform and interpret parametric and non-parametric statistical tests for hypothesis testing in business research. 4. Perform basic inference tools in the data and arrive at conclusions about populations using spreadsheet/jamovi/spss/R			
Semester	**4**	**Credits**	**3**	Total Hours

MGU-BBA (HONOURS)

Course Details	Learning Approach	Lecture	Tutorial	Practical	Others	
		2	0	1	0	60
Pre-requisites, if any	NA					

CO No.	Expected Course Outcome	Learning Domains *	PO No:
1	Students will be able to explain the basic concepts and role of statistics in business decision-making.	U	1
2	Analyse the trends and tendencies over a period of time through time series analysis	An	2
3	Apply appropriate parametric and non-parametric statistical tests for hypothesis testing and interpret the results to support data-driven business decisions.	A	5
4	Apply any data analysis software like spreadsheet/SPSS/R/Jamovi to solve business problems.	A	10

Syllabus

COURSE CONTENT

Module	Course description	Hrs	CO No.
1 Introduction to Statistics in business:			**4Hrs**
1.1	Introduction to Statistics: Meaning and Definition of Statistics, Nature, Importance	2	CO1

1.2	Scope and Limitations of Statistics, Classification of statistics, Role of Statistics in Management Decisions.	2	CO1
2 Time Series Analysis			**12 Hrs**
2.1	Time Series Data, meaning, uses of time series data in business; Components of time series; Additive, Multiplicative models and mixed model (Problems).	6	CO2
2.2	Trend analysis- application of trend analysis in business; Fitting of trend using principle of least squares – Free hand curve, Semi averages, Moving averages, Least Square method (Problems).	6	CO2
3 Statistical Inference:			**14 Hrs**
3.1	Tests of Hypothesis, procedure for testing of hypothesis, Critical region, Two types of error, Level of significance	2	CO3
3.2	Parametric test – Independent t test, Paired t test, One way ANOVA (problems)	7	CO3
3.3	Non-Parametric test- Chi Square (problems), Mann-Whitney U test, Kruskal-Wallis one way ANOVA, Wilcoxon matched pair signed rank test, Friedman's two-way Analysis of Variance (Theory only)	5	CO3
4 Illustrate the concepts in Module 3 Using spreadsheet/R/JAMOVI/OR any other software.			**30 Hrs**
4.1	(A practical record with minimum 5 problems have to be submitted)	30	CO4

MGU-BBA (HONOURS) Syllabus

References

Text Books (Latest Editions):

- Gupta, S. C., & Gupta, I. (2018). Business Statistics. Mumbai, India: Himalaya Publishing House.
- Gupta, S. P., & Gupta, A. (2018). Business Statistics: Statistical Methods. Delhi, India: S. Chand Publishing.
- Hazarika, P. A. (2012). Textbook of Business Statistics. Delhi, India: S. Chand Publishing.

- Levine, D. M., Krehbiel, C., & Berenson, L. (2009). Viswanathan. Business Statistics – A First Course. India: Pearson Education
- Tulsian, P.C., & Jhunjhunwala, B. (2020). Business statistics. Mumbai, India: S. Chand publishing.
- Vohra, N. D. (2017). Business Statistics. Delhi, India: McGraw-Hill Education India.
- J. K Sharma, Business Statistics, 2nd Ed. Pearson, 2010.
- R. K. Ghosh and S. Saha, Business Mathematics and Statistics, Calcutta, New Central Book Agency, 2012.

Suggestive Assessment Activities:

Practical Assesment - Hypothesis Testing with Parametric Tests- Practical session examples

Practical problem can be based on simple and relatable business scenarios to collect or simulate data:

1. College Canteen Sales:
    - Compare average daily spending of male and female students (Independent t-test).
    - Compare spending before and after a price hike (Paired t-test).
    - Compare average daily sales across three weekdays (One-Way ANOVA).
2. Student Buying Behavior:
    - Compare monthly spending on online shopping between UG and PG students (Independent t-test).
    - Compare mobile data usage before and after switching to a new plan (Paired t-test).
    - Compare monthly spending on mobile recharge across three network providers (One-Way ANOVA).
3. Part-Time Work Income:
    - Compare part-time income of students from arts and commerce streams (Independent t-test).
    - Compare income before and after exam months (Paired t-test).
    - Compare income from three different part-time job types (One-Way ANOVA).

MAHATMA GANDHI UNIVERSITY · KOTTAYAM · विद्यया अमृतमश्नुते · MGU BBA (HONOURS) Syllabus

Instructions:

1. Data Collection:

- Collect at least 20 observations per group (can use Google Forms, peer surveys, or simulated data).
- Organize the data clearly in a table (Excel or by hand).

2. Frame Hypotheses:

For each test:

- Null Hypothesis (H_0): No difference / No effect
- Alternative Hypothesis (H_1): There is a difference / effect exists

3. Perform Tests:

- Use Excel / SPSS / R / manual calculation
- Apply:
    - Independent t-test: For two independent groups
    - Paired t-test: For repeated measures from the same group
    - One-Way ANOVA: For more than two independent groups

4. Report the Following for Each Test:

- Test statistic (t or F value)
- Critical value and region (based on chosen α, usually 0.05)
- P-value (if using software)
- Decision rule (e.g., reject H_0 if $p < 0.05$)
- Type of error (Type I or Type II, if applicable)
- Interpretation of result in the context of the business scenario

MAHATMA GANDHI UNIVERSITY KOTTAYAM
विद्यया अमृतमश्नुते
MGU-BBA (HONOURS)
Syllabus

ASSESSMENT

Continuous Comprehensive Assessment(CCA) - Maximum Marks: 25

Sl. NO	**Component**	**Activity**	**Max. Marks**
1	Tests/Quizzes	For testing CO-based learning domains	10

2	Practical Exam	Assessment methods specified in the syllabus	15
Total Marks			**25**

End Semester Assessment(ESE) Maximum Marks: 50

Sl. NO	Component	Activity	Max. Marks
2	**Written Examination**	Short answer type questions: Answer any five questions out of 6.	5x3=15
		Short essay type questions: Answer any 3 questions out of 4.	3x5=15
		Essay type questions: Answer any 2 questions out of 4	2x10= 20
Total Marks			**50**

MAHATMA GANDHI UNIVERSITY KOTTAYAM
विद्यया अमृतमश्नुते
MGU-BBA (HONOURS)
Syllabus