

Course Title: Managerial Statistics

Course Code: Mgmt 313

Credit Hours: 3

ECTS: 5

Prerequisites: Stat 192

Teaching and Learning Methods:

Lecture method, Case studies, Problems Solving Group and Individual Assignments

Course Description:

It is a course in basic statistics with statistical methods, and statistical inference which have become useful tools in every field of knowledge. The former generally describes the group characteristics of the particular data, and the latter describes the judgments based on statistical analysis. Besides, it includes Introduction; data collection and presentation; measures of central tendency and dispersion; Probability and probability distribution.

Course Objective:

The course intended to:

- Familiarizes students with basic concepts of statistics
- Equip student with statistical skills and use these skills in the managerial applications.
- Enable the students to develop an ability to apply statistics in managerial decision making.

Course Content

CHAPTER ONE: Introduction) (3hours)

1.1. Introduction to Statistics: Definitions, Importance, Types and Stages

1.2. Measures of Association: Covariance, Correlation

CHAPTER TWO: PROBABILITY THEORY (6 hours)

2.1. Introduction, Core concepts and Definitions

2.2. Approaches in Probability: Objective Probability & Subjective Probability

2.3. Counting Rules of Probability

2.4. Probability Rules: Addition and Multiplication

2.5. Bayre's Theorem

CHAPTER THREE: PROBABILITY DISTRIBUTION (10 hours)

3.1. Random Variables: Discrete and Continuous

3.1.1 Discrete Probability Distribution

3.1.1.1 Constructing Probability Distribution

3.1.1.2 Mean and Variance of Discrete Probability Distribution

3.1.1.3 Binomial Probability Distribution

3.1.1.4 Hyper geometric Probability Distribution

3.1.1.5 Poisson Probability Distribution

3.1.2 Continuous /Normal/ Probability Distribution

3.1.2.1. Standardizing Normal Distribution

3.1.2.2. Application of Standard Normal Distribution

3.1.2.3. Normal Approximation to the Binomial & Poisson

CHAPTER FOUR: SAMPLING AND SAMPLING DISTRIBUTION (7hours)

4.1. Sampling the Population: Core Concepts, Reasons and Sampling Errors

4.1.1. Sampling Methods

4.1.2. Probability Sampling Methods

4.1.3. Non- Probability Sampling Methods

4.1.4. Shapes of Sampling Distribution

4.1.5. Application of Sampling Distribution of the Sample Means

4.1.6. The Central Limit Theorem

4.1.7. Statistical Estimation

4.1.7.1. Point Estimates

- 4.1.7.2. Interval Estimates
- 4.1.7.3 Constructing Confidence Intervals
 - 4.1.7.3.1. Large Samples
 - 4.1.7.3.2. Small Samples
- 4.2. Determining Sample Size
 - 4.2.1. Sample Size for the Mean
 - 4.2.2. Sample Size for Proportion

CHAPTER FIVE: TESTS OF HYPOTHESIS (7 hours)

- 5.1. Core Concepts and Definitions
- 5.2. Type I and Type II Errors
- 5.3. Steps for Testing a Hypothesis
- 5.4. Tails of a Hypothesis Test
- 5.5. Hypothesis Testing for Large Samples
 - 5.5.1. Testing for the Population Mean (Standard deviation Known and Unknown)
 - 5.5.2. Testing for a Population Proportion
 - 5.5.3. Testing for Two Population Means (Independent Samples)
 - 5.5.4. Testing for the Difference between Two Population Proportions
- 5.6. Tests Involving Paired Observation (Dependent and Small Samples)

CHAPTER-FOUR - CHI-SQUAREDISTRIBUTIONS (5 hours)

- 4.1. Areas of application
 - 4.1.1. Tests for independence between two variables
 - 4.1.2. Tests for the equality of several proportions
 - 4.1.3 Goodness- of fit tests (Binomial, normal, Poisson)

CHAPTER-FIVE- ANALYSIS OF VARIANCE (5 hours)

- 5.1. Areas of application
 - 5.1.1. Comparison of the mean of more than two populations
 - 5.1.2. Variance test

CHAPTER-SIX- REGRESSION AND CORRELATION(4 hours)

- 6.1. Linear correlation
 - 6.1.1 The coefficient of correlation
 - 6.1.2. Rank correlation coefficient
- 6.2. Simple linear regression
 - 6.2.1. Curve fitting,
 - 6.2.2. The method of least square, r^2

Evaluation Modalities:

Continuous Assessment	50%
Attendance.....	5%
Tests.....	30%
Individual Assignments.....	5%
Team Assignments.....	10%
Final Exam.....	50%
Grand Total.....	100%

Texts

- Robert, D. (1999). Statistical Techniques in Business and Economics. 10th ed. Boston: McGraw Hill.

References

- Amir, D. (1999).Complete Business Statistics. Boston: McGraw-Hill Co.
- Bowerman, B. (1997). Applied Statistics: Improving Business Processes. Chicago: McGraw-Hill Co., Inc.

- Canavos and Miller. (1999). An Introduction to Modern Business Statistics. California: Brooks/Cole Publishing Co.
- Chandan, JIts. (1998). Statistics for Business and Economics. New Delhi: Vikas Publishing House Pvt. Ltd. Co.
- Elfson, Punyon and Haber. (1990). Fundamentals of Social Statistics. 2nd ed. Boston: McGraw-Hill.
- Kazmier, J. (1976). Theory and Problems of Business Statistics. New York: McGraw-Hill Book Co.
- Kenkel and James. (1989). Introductory Statistics for Management. 3rd ed. Boston: Pws-Kent Publishing Company.
- Levin and Rubin. (1997). Statistics for Management. 7th ed. New Delhi: Pearson Education.
- Mason, D. (1994). Basic Statistics for Business and Economics. Boston: IRWIN, Inc.
- Meier, J. and Brudney (2002). Applied Statistics. 5th ed. California: Thomson Learning, Inc.
- Veerarajan, T. (2003). Probability, Statistics and Random Processes. 2nd ed. New Delhi: Tata McGraw-Hill Publishing Co. Ltd.