

**SHYAMA PRASED MUKHERJI COLLEGE FOR WOMEN**

**TEACHING PLAN AUGUST 2022 TO DECEMBER 2022**

COURSE AND YEAR: **B.A. (HONS.) II YEAR**

SEMESTER: **III**

TAUGHT INDIVIDUALLY OR SHARED: **INDIVIDUALLY**

PAPER: **STATISTICAL METHODS IN ECONOMICS**

FACULTY: **ITI TOMAR**

NUMBER of classes (per week): **5 + 2**

**Teaching plan**

**Unit 1**

Introduction and overview, The distinction between populations and samples and between population parameters and sample statistics

Devore, J. L. (2012). *Probability and Statistics for Engineering and the Sciences* (8th ed.).

Massachusetts, USA: Cengage Learning. Chapter 1.1

**No of classes required to complete the unit (approx.): 3**

**Unit 2**

Elementary probability theory Sample spaces and events; probability axioms and properties; counting techniques; conditional probability and Bayes' rule; independence

Devore, J. L. (2012). *Probability and Statistics for Engineering and the Sciences* (8th ed.).

Massachusetts, USA: Cengage Learning. Chapter 2

**No of classes required to complete the unit (approx.): 7**

**Unit 3**

Random variables and probability distributions Defining random variables; probability distributions; expected values and functions of random variables; properties of commonly used discrete and continuous distributions (uniform, binomial, exponential, Poisson, hypergeometric and Normal random variables)

Devore, J. L. (2012). *Probability and Statistics for Engineering and the Sciences* (8th ed.).

Massachusetts, USA: Cengage Learning. Chapter 3 (except Negative Binomial

Distribution) & Chapter 4 (4.1-4.3 and pgs. 165-166)

**No of classes required to complete the unit (approx.): 15**

#### **Unit 4**

Random sampling and jointly distributed random variables Density and distribution functions for jointly distributed random variables; computing expected values of jointly distributed random variables; covariance and correlation coefficients

Devore, J. L. (2012). *Probability and Statistics for Engineering and the Sciences* (8th ed.).

Massachusetts, USA: Cengage Learning. Chapter 5 (except pgs. 200-202)

**No of classes required to complete the unit (approx.): 10**

#### **Unit 5**

Point and interval estimation, estimation of population parameters using methods of moments and maximum likelihood procedures; properties of estimators; confidence intervals for population parameters

Devore, J. L. (2012). *Probability and Statistics for Engineering and the Sciences* (8th ed.).

Massachusetts, USA: Cengage Learning. Chapter 6 (except pages 249-250), Chapter 7

(till page 289)

**No of classes required to complete the unit (approx.): 15**

#### **Unit 6**

Hypothesis testing Defining statistical hypotheses; distributions of test statistics; testing hypotheses related to population parameters; Type I and Type II errors; power of a test; tests for comparing parameters from two samples

Devore, J. L. (2012). *Probability and Statistics for Engineering and the Sciences* (8th ed.).

Massachusetts, USA: Cengage Learning. Chapter 8 (except  $\beta$  and sample size

determination in each case)

**No of classes required to complete the unit (approx.): 10**

**Methodology of Teaching:**

1. Interactive online Lectures.
2. Also, many problems sets, questions and relevant material are being provided through different platforms and various other interesting information related to their course is also been shared with them to innovate and spur interest in students.

**Additional sources:**

1. Gupta, S.C. (2019). Fundamentals of Statistics, 5<sup>th</sup> edition, Himalaya Publishing House
2. P.H. Karmel and M. Polasek (1978), Applied Statistics for Economists, 4th edition, Pitman
3. M.R. Spiegel, L.J. Stephens and N. Kumar (2010), Statistics, 4th edition, Schaum Series, McGraw Hill
4. Brase, C. H., & Brase, C. P. (2003). Understandable statistics: Concepts and methods. Boston: Houghton Mifflin.
5. Miller, I., Miller, M., Freund, J. E., & Miller, I. (2004). John E. Freund's mathematical statistics with applications. Upper Saddle River, NJ: Prentice Hall.

**Utility of Additional Sources:** These offer an in-depth the theoretical foundations to students for statistical methods that are useful in many applications. The goal is to understand the role of Statistics and its methods in the research and development. At the end of this course, students are able to formulate a statistical problem from a real-life situation, select appropriate statistical methods and understand the implications and limitations of various methods.

**Tutorials:** Clarification of doubts and discussions on tests and assignments.

**Assessment:** Internal assessment and final examination as per CBCS rules

**Criteria of Assessment:** The students are assessed on comprehension and clarity of concepts based on learning and application.

**Tentative date of assessments/ assignments:**

Test 1: September Third Week

Test 2: October Fourth Week

Assignment: November Fourth Week

I have adhered to the above-mentioned teaching plan and have completed the course on time.



ITI TOMAR

