

GENERIC ELECTIVES (GE-5): BASIC STATISTICS FOR ECONOMICS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

| Semester | Course title & Code | Credits | Credit distribution of the course | | | Eligibility criteria | Pre-requisite of the course (if any) |
|---------------|---|----------|-----------------------------------|----------|---------------------|-----------------------|--|
| | | | Lecture | Tutorial | Practical/ Practice | | |
| II/IV/VI/VIII | Basic Statistics for Economics ECON022 | 4 | 3 | 1 | 0 | Class XII pass | Knowledge of Class XII standard Mathematics |

Learning Objectives

The Learning Objectives of this course are as follows:

- The course teaches students the basics of probability theory and statistical inference based on simple technical rigor.
- It includes introductory probability theories, sample distribution and hypothesis testing that set a necessary foundation for the econometrics course taught as a General Elective.

Learning outcomes

The Learning Outcomes of this course are as follows:

- The student will be able to analyse the data using basic statistical concepts.
- They will understand sampling characteristics, estimation as well as examining the hypotheses using discrete and continuous distributions.

SYLLABUS OF GE- 5

UNIT – I: Introduction and overview (12 hours)

Populations and samples; sample statistics; Descriptive Statistics.

UNIT – II: Basic concepts of probability(12 hours)

Spaces and events; probability concepts, conditional probabilities

UNIT – III: Probability distributions and Sampling (12 hours)

Random variables – discrete and continuous, various probability distributions - functions and characteristics; Commonly used distributions - uniform, binomial, exponential, Poisson, hypergeometric and Normal random variables. Jointly distributions- conditional distributions and expectations, covariance and correlation

Unit – IV: Estimation and Hypothesis testing (9 hours)

Estimation of population parameters - methods of moments and maximum likelihood procedures; properties of estimators; confidence intervals; Defining statistical hypotheses; distributions of test statistics; testing hypotheses related to population parameters; Type I and Type II errors; power of a test

Practical component (if any) - NIL

Recommended readings

- Larsen, R., Marx, M. (2011). *An Introduction to Mathematical Statistics and its Applications*, PrenticeHall.
- James McClave, P. George Benson, Terry Sincich (2017), *Statistics for Business and Economics*, PearsonsPublication.
- Anderson D. R, Sweeney D.J. et. al (2019), *Statistics for Business & Economics*, 13th ed. CengageLearning.
- SheldonRoss(2017), *Introductory Statistics*, 4th Edition, Academic Press

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.