Course Code	**EEC 5203**	Semester	**II**
Course Title	**Statistics for Economic Analysis**		
Credits	**4**	Type	**Core**

Course Description

This course is aimed at introducing the students of economics to certain basic concepts and **techniques in statistics** which are considered to be Very useful to an understanding of economics. This course is intended to give an idea on fundamentals of sampling Distribution and inferential statistics with its applications and expose students to **the basic skills in sampling and statistical estimation**

Course Outcome

By the end of the course, students are expected to be able to:

- Evaluate advanced theories in the statistics
- Teach applications of statistics in Economics
- **Training in Statistical Packages in STATA and SPSS**
- Enabling the students for data analysis and creating employability

Course Structure

Module1: Elements of Probability

Set Theory-Principles of Counting-concept of factorial-permutation and combinations-event-random excise-simple probability-joint probability-conditional probability-bayes theorem-cumulative Distribution Function-Mathematical Expectation-theorems of expectation-theory of variance

Module 2: Understanding Distribution

Discrete and continuous Distribution- Theoretical distribution of Binomial, Poisson and Normal distributions; Log normal Distribution, Pareto Distribution, Chi-square distribution – F distribution sampling distribution of a statistic-law of statistical regularity-inertia of large number-central limit theorem- Testing Normality.

Module 3: Theory of Estimation

Concept of estimation-estimator-types and properties-point and interval estimation-standard errors of estimators-confidence limits for a population parameter

Module 4: Inferential statistics

Formulation of statistical hypothesis – Null and alternative hypothesis; Goodness of fit; Confidence intervals and level of significance-one tailed and two tailed test-Types of Errors; Type 1 and Type 2 errors. Hypothesis testing based on Z, t, F, Chi-square) for both large and small samples and F tests-ANOVA- Practical Exercises

Module 5: Non-Parametric Methods

Definition-non parametric data-concept and use-tests for non-parametric Data-Lickert Scale, Sign Test, Kusker value, Kendall's Coefficient of Concordance - practical exercises

Testing & Evaluation

Internal Evaluation consisting of Presentation, Assignment, Mid term exam and final end semester examination.

Readings:

- Speigal. M.R. (1992), Theory and Problems of Statistics, McGraw Hill, London.
- Croxton, Frederick E., Dudley J. Cowden and Sidney Klein (1988)**:** *Applied General Statistics*, Prentice-Hall of India Private Ltd., New Delhi.
- Hamilton, Lawrence C. (1990) *Modern Data Analysis: A First Course in Applied Statistics*, Brooks/Cole, California.
- Anderson, Sweeney, and Williams, Statistics for Business and Economics, 8e, CENAGE learning, 2010
- Marsh, Catherine (2009) *Exploring Data: An Introduction to Data Analysis for Social Scientists*, Polity Press, UK, Second Edition
- Myatt, Glenn J. (2007): *Making Sense of Data: A Practical Guide to Exploratory Data Analysis and Data Mining*, Wiley-Interscience, New Jersey.
- Nagar, A.L. and R. K. Das (1987) *Basic Statistics*, Oxford University Press, New Delhi.
- Sanders, Donald H. (1990): *Statistics: A Fresh Approach*, McGraw-Hill Publishing Company, New York.
- Myles Hollander, Douglas A. Wolfe, Eric Chicken (2013) Nonparametric Statistical Methods, Wiley