St. Xavier's College (Autonomous), Ahmedabad

FACULTY OF ARTS
DEPARTMENT OF ECONOMICS (SF)

BA. Hons. (Economics) SF

SEMESTER-2

Minor Course: Statistics for Economics-2

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Pre-requisite(s) of the Course (if any)
	Lectures	Tutorial	Practical / Practice		
Statistics for Economics-2 (ECH-2101)	4	0	0	10 + 2 from a recognized board in any stream	None

Learning Objectives (LO):

1. Understand fundamental probability concepts, random variables, and probability distributions.
2. Analyze joint distributions, correlation, and dependence between random variables.

Course Outcomes (CO):

1. Apply probability theory to model real-world uncertainty and random processes.
2. Use probability distributions and moment-generating functions in statistical inference.

Chapter-1: Probability Distributions-1

Uniform Probability Distribution, Area as a Measure of Probability, Normal Probability Distribution, Normal Curve, Standard Normal Probability Distribution, Computing Probabilities for Any Normal Probability Distribution, Grear Tire Company Problem, Normal Approximation of Binomial Probabilities, Exponential Probability Distribution, Computing Probabilities for the Exponential Distribution, Relationship Between the Poisson and Exponential Distributions.

Chapter-2: Sampling Techniques

Sampling Problem, Selecting a Sample, Sampling from a Finite Population, Sampling from an Infinite Population, Point Estimation, Practical Advice, Introduction to Sampling Distributions, Sampling Distribution of x, Expected Value of x, Standard Deviation of x, Form of the Sampling Distribution of x, Sampling Distribution of x for the EAI Problem, Practical Value of the Sampling Distribution of x, Relationship Between the Sample Size and the Sampling Distribution of x, Sampling Distribution of p, Expected Value of p, Standard Deviation of p, Form of the Sampling Distribution of p, Practical Value of the Sampling Distribution of p, Properties of Point Estimators, Unbiased, Efficiency, Consistency, Other Sampling Methods, Stratified Random Sampling, Cluster Sampling, Systematic Sampling, Convenience Sampling, Judgment Sampling, Big Data and Standard Errors of Sampling Distributions, Sampling Error, Nonsampling Error.

Chapter-3: Interval Estimation

Population Mean: σ Known, Margin of Error and the Interval Estimate, Practical Advice, Population Mean: σ Unknown, Margin of Error and the Interval Estimate, Using a Small Sample, Summary of Interval Estimation Procedures, Determining the Sample Size, Population Proportion.

Chapter-4: Hypothesis Testing

Developing Null and Alternative Hypotheses, The Alternative Hypothesis as a Research Hypothesis, The Null Hypothesis as an Assumption to Be Challenged, Summary of Forms for Null and Alternative Hypotheses, Type I and Type II Errors, Population Mean: σ Known, One-Tailed Test, Two-Tailed Test, Summary and Practical Advice, Relationship Between Interval Estimation and Hypothesis Testing, Population Mean: σ Unknown, One-Tailed Test, Two-Tailed Test, Summary and Practical Advice, Population Proportion, Summary, Hypothesis Testing and Decision Making, Calculating the Probability of Type II Errors, Determining the Sample Size for a Hypothesis Test About a Population Mean.

Textbook:

- Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., Cochran, J. J., Fry, M. J., & Ohlmann, J. W. (2020). Statistics for business & economics (14th ed.). Cengage Learning.

Suggestive Reading

1. Larsen, R.J. and M.J. Marx (2017) – An Introduction to Mathematical Statistics and Its Applications, Pearson Education, 6th edition.
2. Wackerly, D., Mendenhall, W., & Scheaffer, R. (2014) – Mathematical Statistics with Applications, Cengage Learning, 7th edition.
3. Hogg, R. V., Tanis, E. A., & Zimmerman, D. L. (2018) – Probability and Statistical Inference, Pearson, 10th edition.
4. Casella, G., & Berger, R. L. (2002) – Statistical Inference, Duxbury Press, 2nd edition.

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FACULTY OF ARTS
DEPARTMENT OF ECONOMICS (SF)

BA. Hons. (Economics) SF
SEMESTER-2

Minor Course: Principles of Economics-2

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Pre-requisite(s) of the Course (if any)
	Lectures	Tutorial	Practical / Practice		
Principles of Economics-2	4	0	0	10 + 2 from a recognized board in any stream	None

LO:
Understand the cost structures, market organization, and strategic behaviour of firms under different market conditions.
Analyse how production decisions, pricing strategies, and government policies affect efficiency and welfare across market types.

CO:
Apply microeconomic theory to explain cost concepts, market competition, and firm strategy in real-world contexts.
Evaluate policy implications and market outcomes arising from imperfect competition, entry–exit dynamics, and cooperation among firms.

Unit–1: The Costs of Production:

What Are Costs, Total Revenue Total Cost and Profit, Why Opportunity Costs Matter, The Cost of Capital as an Opportunity Cost, Economic and Accounting Profit, Production and Costs, The Production Function, From the Production Function to the Total-Cost Curve, The Many Measures of Cost, Fixed and Variable Costs, Average and Marginal Cost, Cost Curves and Their Shapes, Typical Cost Curves, Costs in the Short Run and Long Run, Relationship between Short-Run and Long-Run Average Total Cost, Economies and Diseconomies of Scale, Lessons from a Pin Factory.

Unit–2: Firms in Competitive Markets:

What Is a Competitive Market, Meaning of Competition, Revenue of a Competitive Firm, Profit Maximization and the Competitive Firm's Supply Curve, Example of Profit Maximization, Marginal-Cost Curve and Firm's Supply Decision, Short-Run Decision to Shut Down, Sunk Costs, Long-Run Decision to Exit or Enter a Market, Measuring Profit, Supply Curve in a Competitive Market, Short Run: Market Supply with Fixed Firms, Long Run: Market Supply with Entry and Exit, Why Competitive Firms Stay in Business with Zero Profit, Shifts in Demand in Short Run and Long Run, Why Long-Run Supply Curve Might Slope Upward.

Unit–3: Monopoly:
Why Monopolies Arise, Monopoly Resources, Government-Created Monopolies, Natural Monopolies, How Monopolies Make Production and Pricing Decisions, Monopoly versus Competition, Monopoly's Revenue, Profit Maximization, Monopoly's Profit, Why a Monopoly Does Not Have a Supply Curve, Monopoly Drugs versus Generic Drugs, Welfare Cost of Monopolies, Deadweight Loss, Monopoly Profit as a Social Cost, Price Discrimination, Analytics and Examples of Price Discrimination, Public Policy toward Monopolies, Antitrust Laws, Regulation, Public Ownership, Do No Harm Principle, Mergers and Competition, Antitrust in the Digital Economy.

Unit–4: Monopolistic Competition and Oligopoly:
Between Monopoly and Perfect Competition, Competition with Differentiated Products, Monopolistically Competitive Firm in Short Run, Long-Run Equilibrium, Monopolistic versus Perfect Competition, Monopolistic Competition and Welfare, Advertising, Debate over Advertising, Advertising and Prices, Advertising as Signal of Quality, Brand Names, Markets with Few Sellers, Duopoly Example, Competition Monopolies and Cartels, Equilibrium for an Oligopoly, Size of Oligopoly and Market Outcome, Economics of Cooperation, Prisoners' Dilemma, Oligopolies as a Prisoners' Dilemma, OPEC and World Oil Market, Welfare of Society, Why People Sometimes Cooperate, Public Policy toward Oligopolies, Antitrust Laws, Controversies over Antitrust Policy, Microsoft Case, Amazon in the Crosshairs.

Textbook:
- Principles of Economics- Mankiw (10th ed.)

Suggestive Reading
1. Principles of Economics – Mankiw (10th ed.), Economics – Samuelson & Nordhaus (19th ed.)
2. Principles of Economics – Case, Fair & Oster (13th ed.)
3. Principles of Microeconomics – Stiglitz & Walsh (2nd ed.)