

## DEPARTMENT OF ECONOMICS

### BA (Hons.) Economics

#### *Category-I*

#### CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
<b>Introductory Microeconomics ECON001</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>Class XII pass</b>	<b>NIL</b>

#### Learning Objectives

The Learning Objectives of this course are as follows:

- To expose students to the basic principles of microeconomic theory
- To emphasize on the fundamental economic trade-offs and allocation problems due to scarcity of resources
- To use graphical methods to illustrate how microeconomic concepts can be applied to analyze real-life situations

#### Learning outcomes

The Learning Outcomes of this course are as follows:

- By studying the course, the students will understand economic trade-offs and opportunities.
- By studying the course, the students will understand the fundamentals of market mechanisms and government interventions.

#### SYLLABUS OF DSC-1

**UNIT – I:** Introduction to economic trade-offs **(12 Hours)**  
Resources and opportunities, Gains from trade, Individual and society

**UNIT – II:** How market works **(16 Hours)**  
Supply and demand, Price and resource allocation, Elasticity, Market, trade and welfare

**UNIT – III:** Role of government **(16 Hours)**  
Taxation, Public good, Inequality and poverty

**UNIT – IV:** Individual decision and interaction **(16 Hours)**  
Decision versus strategic interaction, How to think about strategic interactions, Real life examples

**Practical component (if any) - NIL**

**Essential/recommended readings:**

- Mankiw, N. G. (2018). *Principles of Microeconomics* 8th ed.
- Frank, R. H., & Cartwright, E. (2010). *Microeconomics and behavior*. New York: McGraw-Hill.
- Dixit, A. K., & Skeath, S. (2015). *Games of strategy*: Fourth international student edition. WW Norton & Company.
- Acemoglu, D., Laibson, D., & List, J. (2017). *Microeconomics*. Pearson.

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

**DISCIPLINE SPECIFIC CORE COURSE – 2 (DSC-2): INTRODUCTORY MATHEMATICAL METHODS FOR ECONOMICS**

**CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
<b>Introductory Mathematical Methods for Economics ECON002</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>Class XII pass with Mathematics</b>	<b>NIL</b>

**Learning Objectives**

The Learning Objectives of this course are as follows:

- To transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus
- Particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general
- The sophistication would be maintained at a standard level to grow in the profession

**Learning outcomes**

The Learning Outcomes of this course are as follows:

- To hone and upgrade the mathematical skills acquired in school and paves the way for the second semester course Intermediate Mathematical Methods
- To apply the analytical tools introduced in this course wherever unconstrained optimisation techniques are used in economics and business decision-making

- To make the students more logical in making or refuting arguments

## SYLLABUS OF DSC- 2

### UNIT –I: Preliminaries (20 Hours)

Logic and proof techniques; sets and set operations; relations; functions and their properties; number systems.

### UNIT – II: Functions of one real variable: (20 Hours)

Graphs; elementary types of functions: quadratic, polynomial, power, exponential, logarithmic; sequences and series: convergence, algebraic properties and applications; continuous functions: characterisation, properties with respect to various operations and applications; differentiable functions: characterisation, properties with respect to various operations and applications; second and higher order derivatives: properties and applications.

### UNIT – III: Single-variable optimization (20 Hours)

Geometric properties of functions: convex functions, their characterisation and applications; local and global optima: geometric and calculus-based characterisation, applications

**Practical component (if any) - NIL**

### Essential/recommended readings

- Sydsaeter, K., Hammond, P. (2002). *Mathematics for economic analysis*. Pearson Education.
- Hoy, M., Livernois, J., McKenna, C., Rees, R., Stengos, T. (2001). *Mathematics for Economics*, Prentice-Hall India.

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## DISCIPLINE SPECIFIC CORE COURSE– 3 (DSC-3): INTRODUCTORY STATISTICS FOR ECONOMICS

### CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Introductory Statistics for Economics ECON003	4	3	1	0	Class XII pass with Mathematics	NIL

## Learning Objectives

The Learning Objectives of this course are as follows:

- To familiarize students with methods of summarizing and describing important features of data. The course teaches students the basics of probability theory and sets a necessary foundation for Inferential Statistical Theory and the Econometrics courses. The familiarity with probability theory will also be valuable for courses in economic theory.

## Learning outcomes

The Learning Outcomes of this course are as follows:

- The student would understand the concept of probability, random variables and their distributions and become familiar with some commonly used discrete and continuous distributions of random variables so that they would be able to analyse various real-life data.

## SYLLABUS OF DSC-3

### **UNIT - 1: Introduction and overview (12 Hours)**

The distinction between populations and samples and, between population parameters and sample statistics; Pictorial Methods in Descriptive Statistics; Measures of Location and Variability.

### **UNIT - 2: Elementary probability theory (12 Hours)**

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

### **UNIT – 3: Random variables and probability distributions (12 Hours)**

Defining random variables; discrete and continuous random variables, probability distributions; expected values and functions of random variables.

### **UNIT - 4: Sample Distributions (8 Hours)**

Properties of commonly used discrete and continuous distributions (uniform, binomial, exponential, Poisson, hypergeometric and Normal random variables).

### **UNIT - 5: Random sampling and jointly distributed random variables (16 Hours)**

Density and distribution functions for jointly distributed random variables; computing expected values of jointly distributed random variables; conditional distributions and expectations, covariance and correlation.

**Practical component (if any) - NIL**

**Essential/recommended readings**

- Devore, J. (2012). *Probability and Statistics for Engineers*, 8th ed. Cengage Learning.
- John A. Rice (2007). *Mathematical Statistics and Data Analysis*, 3rd ed. Thomson Brooks/Cole.
- Miller, I., Miller, M. (2017). *J. Freund's Mathematical Statistics with Applications*, 8th ed. Pearson.
- Hogg, R., Tanis, E., Zimmerman, D. (2021) *Probability and Statistical inference*, 10th Edition, Pearson

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