

DEPARTMENT OF ECONOMICS

CATEGORY-I BA (HONS.) ECONOMICS

DISCIPLINE SPECIFIC CORE COURSE -4 (DSC-4): INTRODUCTORY MACROECONOMICS

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 Macroeconomics ECON004	4	3	1	0	Class XII pass	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- To introduce students to the basic concepts of macroeconomics
- To discuss the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variables like GDP, savings, investment, money, inflation, unemployment and the balance of payments
- To introduce the simple analytical frame- work (e.g., the IS-LM model) for analysing the relationships among key macroeconomic variables

Learning outcomes

The Learning Outcomes of this course are as follows:

- The students would be able to familiarise the broad macroeconomic concepts like GDP, inflation, money supply, interest rate and their inter-linkages and their interrelationships.
- By studying the course, the students will able to critically evaluate various macroeconomic policies and their effects on output and interest rate in the economy.

SYLLABUS OF DSC-4

UNIT – I: Introduction to Macroeconomic issues and National Income Accounting (12 Hours)

Basic issues studied in macroeconomics; measurements of gross domestic product, income, expenditure and the circular flow; real versus nominal GDP; price indices; national income accounting for open economy, balance of payments accounts; current, capital and financial accounts.

UNIT – II: Money (10 Hours)

Functions of money; quantity theory of money; demand for money; determination of money supply and demand; credit creation; tools of monetary policy.

UNIT – III: Simple Theory of Income Determination (11 Hours)

Classical and Keynesian systems; simple Keynesian model of income determination

UNIT – IV: IS-LM Analysis and Aggregate Demand (12 Hours)

Derivations of the IS and LM curves; fiscal and monetary multipliers; derivation of aggregate demand

Practical component (if any) - NIL

Essential/recommended readings:

- Andrew Abel, Ben Bernanke and Dean Croushore (2011). *Macroeconomics* (7th edition), Pearson.
- Richard T. Froyen (2013). *Macroeconomics: Theories and Policies* (10th ed.), Pearson.
- Blanchard, O. (2006). *Macroeconomics* (6th edition). Pearson
- Blanchard, O. (2017). *Macroeconomics* (7th edition). Pearson
- Dornbusch, R., S. Fischer and R. Startz. *Macroeconomics* (6th edition). McGraw- Hill
- Dornbusch, R., S. Fischer and R. Startz. *Macroeconomics* (11th edition). McGraw-Hill

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

DISCIPLINE SPECIFIC CORE COURSE – 5 (DSC-5): INTERMEDIATE 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		
Intermediate Mathematical Methods for Economics ECON005	4	3	1	0	Class XII pass with Mathematics	NIL

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:

- The course builds the mathematical foundations necessary for further study of a variety of disciplines including postgraduate economics, statistics, computer science, finance and data analytics
- The analytical tools introduced in this course have applications wherever optimization techniques are used in business decision-making for managers and entrepreneurs alike
- These tools are necessary for anyone seeking employment as an analyst in the corporate world.

SYLLABUS OF DSC- 5

UNIT –I: Linear Algebra (15 Hours)

Vector spaces: algebraic and geometric properties, scalar product, norm, orthogonality; linear transformations: properties, matrix representation and elementary operations; systems of linear equations: properties of their solution sets; determinants: characterization, properties and applications; eigenvalues and eigenvectors, diagonalization, spectral theorem.

UNIT – II: Functions of several real variables (15 Hours)

Geometric representation: graphs and level curves; differentiable functions: characterisation, properties with respect to various operations and applications; second order derivatives: properties and applications; the implicit function theorem, application to comparative statics; homogeneous and homothetic functions: characterisation, applications.

UNIT – III: Multivariate optimization (15 Hours)

Convex sets; geometric properties of functions: convex functions, their characterisation, properties and applications; quasi convex functions, their characterisation, properties and applications; unconstrained optimisation: geometric characterisation, characterisation using calculus, applications.

Essential/recommended readings

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

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

DISCIPLINE SPECIFIC CORE COURSE– 6 (DSC-6): INTERMEDIATE 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		
Intermediate Statistics for	4	3	1	0	Class XII pass with	NIL

Economics ECON006					Mathematics	
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Learning Objectives

The Learning Objectives of this course are as follows:

- This course focuses on techniques for statistical inference. The main objective of the course is to help students understand how to draw inference from samples regarding the underlying populations using point estimation, interval estimation and hypothesis testing.

Learning outcomes

The Learning Outcomes of this course are as follows:

- An important learning outcome of the course will be the capacity to use and analyse statistics in everyday life. The course will improve students' ability to analyse data, make decisions, form predictions, and conduct research.

SYLLABUS OF DSC-6

UNIT - 1: Sampling distribution of a Statistic (12 Hours)

Concept of Statistic and parameter, Sampling distributions, Central Limit Theorem.

UNIT - 2: Estimation (12 Hours)

Estimator and methods of estimation, Point Estimation: method of moments and method of maximum likelihood; Interval Estimation, Properties of an estimator: Consistency, Unbiasedness, Efficiency and Sufficiency, confidence level and sample size, intervals based on Z-distribution, t-distribution and chi-squared distribution, F-distribution.

UNIT – 3: Inference (9 Hours)

Meaning of a statistical hypothesis, errors in hypothesis testing: Type 1 and Type 2 errors, power of a test.

UNIT - 4: Hypothesis Testing (12 Hours)

Testing of a population Mean, proportions - small and large sample tests, P-value; Testing for variance; Testing hypothesis for two samples, testing for equality of means; testing for ratio of variances.

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
- Larsen, R., Marx, M. (2011). *An introduction to mathematical statistics and its applications*. Prentice Hall.
- Miller, I., Miller, M. (2017). *J. Freund's mathematical statistics with applications*, 8th ed. Pearson.
- Demetri Kantarelis, D. and Malcolm O. Asadoorian, M. O. (2009). *Essentials of*