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		
Introductory Microeconomics ECON001	**4**	**3**	**1**	**0**	**Class XII pass**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- To expose students to the basic principles of microeconomic theory
- To emphasis 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		
Introductory Mathematical Methods for Economics ECON002	**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:

- 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.

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

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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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 familarise the broad macroeconomic concepts like GDP, inflation, money supply, interest rate and their inter-linkages and their interrelation-ships.
- 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; cur- rent, 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

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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.

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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**	

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*

UNIVERSITY OF DELHI

CNC-II/093/1(25)/2023-24/
Dated: 31.05.2023

N O T I F I C A T I O N

Sub: Amendment to Ordinance V

[E.C Resolution No. 60/ (60-1-3) dated 03.02.2023]

Following addition be made to Appendix-II-A to the Ordinance V (2-A) of the Ordinances of the University;

Add the following:

Syllabi of Semester-III of the following departments under Faculty of Social Sciences based on Under Graduate Curriculum Framework -2022 implemented from the Academic Year 2022-23.

FACULTY OF SOCIAL SCIENCES

DEPARTMENT OF ECONOMICS

BA. (HONS.) ECONOMICS

DISCIPLINE SPECIFIC CORE COURSE -7 (DSC-7): Intermediate Microeconomics I: Behavioural foundations of Market Interactions

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Intermediate Microeconomics I: Behavioural foundations of Market Interactions – ECON007	4	3	1	0	Passed Class 12th	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- The course is designed to formally analyze the behaviour of individual agents like consumers and producers under certain conditions.
- Mathematical tools are used to facilitate understanding of the basic concepts.
- This course looks at the behaviour of the consumer and the choices of a competitive firm.

Learning outcomes

The Learning outcomes of this course are as follows:

- Students will learn the basic elements of consumption and production theories using various technical frameworks.
- This course provides them the behavioural foundations of market supply and demand.

Syllabus

UNIT I: Consumer behaviour (15 hours)
Preference and utility, Budget and choice, Income and substitution effect, Demand derivation, Labour supply, One-person welfare

UNIT II: Decision-making under uncertainty (15 hours)
Expected utility, Risk aversion, Insurance, Risk spreading

UNIT III: Producer behaviour and markets (15 hours)
Technology, Profit maximization, Cost minimization, Supply, Short and long run

Recommended readings

- Serrano, Roberto and Feldman, Alan (2012), *A short course in intermediate Microeconomics with Calculus*, Cambridge University Press
- Espinola-Arredondo, Ana and Muñoz-Garcia, Felix (2020), *Intermediate Microeconomic Theory*, MIT Press
- Osborne, M J and Rubinstein, A (2020), *Models in Microeconomic Theory*, Open Book Publishers
- Muñoz-Garcia, Felix (2017) Practice *Exercises for Advanced Microeconomic Theory*, MIT Press
- Dunaway, Eric; Strandholm, John C., Espinola-Arredondo, Ana and Munoz-Garcia, Felix (2020) *Practice Exercises for Intermediate Microeconomic Theory*, MIT press

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

DISCIPLINE SPECIFIC CORE COURSE -8 (DSC-8): Intermediate Macroeconomics I: Foundations of Aggregate Income Determination

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Intermediate Macroeconomics I: Foundations of Aggregate Income Determination – ECON008	**4**	**3**	**1**	**0**	**Class 12th Pass**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- This course builds upon the basic concepts of macroeconomics. It introduces labour markets and the aggregate supply (AS) curve.
- Aggregate Demand (AD) and Aggregate Supply (AS) are brought together to determine equilibrium prices and output examine the policy impacts.
- The course discusses Phillips curve and the alleged trade-off between inflation and unemployment. Both adaptive and rational expectations are introduced.
- A flavour of micro-foundations is introduced with respect to consumption and investment.

Learning outcomes

The Learning outcomes of this course are as follows:

- This course enables students to analyse the interaction of aggregate demand and supply and the effects of fiscal and monetary policy, trade-off between inflation and unemployment, and consumption and investment behaviour of the households.

Syllabus

UNIT I: Short-run and medium-run equilibrium (15 hours)
The labour market, Wage determination; wages, prices, and unemployment; natural rate of unemployment; from employment to output, Derivation of aggregate supply curve, Interaction of aggregate demand and supply to determine equilibrium output, price level and employment.

UNIT II: Philips Curve and Theory of Expectations (15 hours)
Inflation, unemployment and expectations, Phillips Curve; adaptive and rational expectations; policy ineffectiveness debate.

UNIT III: Microeconomic foundations of macroeconomic behaviours (15 hours)
Consumption: Keynesian consumption function; Fisher's theory of optimal intertemporal choice; life-cycle and permanent income hypotheses; other theories of consumption expenditure.
Investment: determinants of business fixed investment; residential investment and inventory investment.

Recommended readings

- Blanchard, O. (2006). *Macroeconomics*, 4th ed. Pearson Education.
- C.L.F. Attfield, D. Demery and N.W. Duck (1991). *Rational Expectations in Macroeconomics: an introduction to theory and evidence* 2nd Ed.
- Sheffrin, Steve (1996). *Rational Expectations*. 2nd ed., Cambridge University Press.
- Dornbusch, R., Fischer, S. (1994). *Macroeconomics*, 6th ed., McGraw-Hill.
- Branson, W. (2013). *Macroeconomics: Theory and policy*, 3rd ed, East West Press.
- Carlin, W and D Soskice (2007), *Macroeconomics: Imperfections, Institutions and Policies*, Indian Edition, OUP.

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

DISCIPLINE SPECIFIC CORE COURSE -9 (DSC-9): Advanced Mathematical Methods for Economics

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Advanced Mathematical Methods for Economics – ECON009	**4**	**3**	**1**	**0**	**Passed Class 12th with Mathematics**	**NIL**

Learning Objectives

This is the last of a compulsory three-course sequence. 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.

- In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general.

Learning outcomes

The Learning outcomes of this course are as follows:

- The course builds the skills for mathematical foundations necessary required 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 especially constrained optimization 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

UNIT I: Multivariate Optimization with constraints (15 hours)
Constrained optimisation with equality and inequality constraints: geometric characterisation, Lagrange characterisation using calculus and applications; properties of value function: envelope theorem, applications.

UNIT II: Linear programming (15 hours)
Introduction, graphical solution, matrix formulation, duality, economic interpretation.

UNIT III: Integration, differential equations, and difference equations (15 hours)
Definite integrals, indefinite integrals and economic applications; first order and second order difference equations, equilibrium and its stability; first order differential equations, phase diagrams and stability; second order differential equations.

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.

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SEMESTERS –IV and V

ECONOMICS

DEPARTMENT OF ECONOMICS

Category I

Economics Courses for Undergraduate Programme of study with Economics as a Single Core Discipline

(B.A. Honours in Economics in three years)

STRUCTURE OF FOURTH SEMESTER

DISCIPLINE SPECIFIC CORE COURSE -10 (DSC-10): Intermediate Microeconomics II: Market, Government and Welfare

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Intermediate Microeconomics II:Market, Government and Welfare -ECON010	4	3	1	0	Class 12th with Mathematics	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- This course introduces students to analysis of multi-commodity markets.
- The efficiency results, known as welfare theorems, are central to understanding of market economy.
- The course also discusses inefficiencies coming from market concentration and externalities.
- It further would discuss the role of government to deal with the inefficiencies and resultant welfare outcomes.

Learning outcomes

The Learning outcomes of this course are as follows:

- This course helps the students to understand efficiency of markets and the environment where the standard market mechanism fails to generate the desirable outcomes in simple general equilibrium settings.
- The issues of market imperfection and market failures lead students to the economics of policy

design. The students will learn the efficacy of government interventions for the improved welfare.

Syllabus

UNIT I: Monopoly (9 hours)
Monopoly pricing, Inefficiency, Price discrimination, Regulation

UNIT II: General equilibrium (9 hours)
Exchange economy, Robinson Crusoe economy, Pareto optimality, Welfare theorems, Welfare and social choice

UNIT III: Models of Monopolistic Competition (9 hours)
Firms with differentiated products, mark-up, short-run and long-run equilibrium

UNIT IV: Externalities (9 hours)
Market inefficiency under externalities, Pigou tax, Coase theorem, Market creation and other solutions

UNIT V: Public Good (9 hours)
Inefficiency of market equilibrium, Optimal public good provision, Free rider problem, Lindahl taxes

Recommended readings

- Serrano, Roberto and Feldman, Alan (2012), *A short course in intermediate Microeconomics with Calculus*, Cambridge University Press
- Espinola-Arredondo, Ana and Munoz-Garaia, Felix (2020), *Intermediate Microeconomic Theory*, MIT Press
- Munoz-Garaia, Felix (2017) *Practice Exercises for Advanced Microeconomic Theory*, MIT Press.
- Dunaway, Eric; Strandholm, John C., Espinola-Arredondo, Ana and Munoz-Garcia, Felix (2020) *Practice Exercises for Intermediate Microeconomic Theory*, MIT press

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DISCIPLINE SPECIFIC CORE COURSE -11 (DSC-11): Intermediate Macroeconomics II: Policy Issues

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Intermediate Macroeconomics II: Policy Issues – ECON011	**4**	**3**	**1**	**0**	**Class 12th with Mathematics**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- This course trains the students in policy issues faced by macroeconomists in the real world.
- It discusses issues in monetary and fiscal policies as well as exchange rate dynamics.
- It also introduces the students to the financial system and dynamics of financial crises.
- The students are introduced to macroeconomic concepts in the context of open economies and the policy issues therein.

Learning outcomes

The Learning outcomes of this course are as follows:

- This course enables students to analyse the functioning of macroeconomic policies in the real world in both closed and open economies, understand the dilemmas faced by the policymakers both in the domestic economy and in the globalised world.

Syllabus

UNIT I: Fiscal and monetary policies (15 hours)
Active or passive monetary policies; time inconsistency, monetary policy objectives and targets; rules versus discretion, IS-PC-MR model, fiscal policy, the government budget constraint; government debt and Ricardian equivalence.

UNIT II: Financial markets and crisis (15 hours)
Introduction to financial markets, Financial crises and liquidity trap

UNIT III: Issues in open economy (15 hours)
Short-run open economy models; Mundell-Fleming model, Exchange rate determination; purchasing power parity, asset market approach, Dornbusch's overshooting model; monetary approach to balance of payments, International financial markets.

Recommended readings

- Blanchard, O. (2006). *Macroeconomics*, 4th, 6th and 7th ed. Pearson Education.
- Salvatore, D. (2007), *International Economics*, Wiley.
- Dornbusch, R., Fischer, S. (1994). *Macroeconomics*, 6th ed. McGraw-Hill.
- Mishkin, Frederic (2012). *Macroeconomics: Policy & Practice*, Pearson.
- Jones, C. (2016). *Macroeconomics*, 4th ed. W. W. Norton.
- Carlin, Wendy and Soskice, David (2015) *Macroeconomics: Institutions, Instability and the Financial System*. Oxford University Press.

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DISCIPLINE SPECIFIC CORE COURSE -12 (DSC-12): Introductory Econometrics

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Introductory Econometrics – ECON012	**4**	**3**	**0**	**1**	**Class 12th with Mathematics**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- This course introduces a basic set of the econometric methods to conduct empirical analysis in economics and social sciences.
- The course is designed to provide the students with the basic quantitative techniques needed to undertake applied research projects.
- It also provides the base for more advanced optional courses in econometrics.
- The tools of econometrics will be useful to establish relationships among economic variables.
- This course will be taught as a combination of theory and practicals.

Learning outcomes

The Learning outcomes of this course are as follows:

- The students will be able to estimate linear models using the method of ordinary least squares and make inferences about population parameters.
- They will also understand the issues of estimation arising due to misspecification of models and violations of assumptions.
- Students will also gain hands-on-experience of applying the concepts learnt to a wide range of problems using econometric software.

Syllabus

UNIT I: Linear Regression Model (9 hours)
OLS method of Estimation and Properties of estimators, Measures of Fit, Testing of Hypotheses, Prediction, Introduction to econometric software and practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)

UNIT II: Multiple Regression Model (9 hours)
OLS method of estimation and Properties of OLS estimators, Testing of Hypotheses, Measures of fit, practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)

UNIT III: Functional Forms and Qualitative independent variables (9 hours)
Nonlinear Models and Transformations of Variables, Dummy variables, practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)

UNIT IV: Violations of Assumptions (9 hours)
Consequences, Detection, and Remedies: Multicollinearity, Heteroscedasticity, Serial Correlation, practical application using econometric software (GRETL/EViews/R/Stata/EXCEL etc.)

UNIT V: Specification Bias (9 hours)

Model selection criteria, types of specification errors, omitted variable bias, inclusion of irrelevant variables, incorrect functional form, errors of measurement, practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)

Recommended readings

- James H. Stock and Mark W.Watson (2019) *Introduction to Econometrics*, Fourth Edition, Pearsons.
- Wooldridge, J. M. (2019). *Introductory econometrics: A modern approach*. 7th edition, Cengage learning.

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Semester-V

DEPARTMENT OF ECONOMICS

Category I

(B.A. Honours in Economics in three years)

DISCIPLINE SPECIFIC CORE COURSE -13 (DSC-13): Game Theory and Strategic Interactions

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Game Theory and Strategic Interactions – ECON013	**4**	**3**	**1**	**0**	**Class 12th with Mathematics**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- This course introduces students to formal analysis of game theory and its applications on the micro-economic issues.
- Game theory will be used to analyse market power, commitment problem, coordination problem and various modern market design tools like contract and auction.

Learning outcomes

The Learning outcomes of this course are as follows:

- This course helps the students to understand strategic interactions and importance of information in strategic situations.
- The concepts and tools developed in this course will enable the students to analyse various strategic relations seen in various disciplines, like in economics, management and other social sciences.

Syllabus

UNIT I: Complete information simultaneous move game, Dominance, Nash equilibrium, Mixed strategy Nash equilibrium (9 hours)

UNIT II: Complete information extensive form game (9 hours)
Sequential rationality and subgame perfection

UNIT III: Topics from Industrial Organization (9 hours)

UNIT IV: Incomplete information (9 hours)
Bayes Nash equilibrium, Auction, Moral Hazard, Contract

UNIT V: Communicating information (9 hours)
Perfect Bayesian equilibrium, Job market signaling and reputation

Recommended readings

- Watson, J. (2002). *Strategy: an introduction to game theory*. New York: WW Norton.
- Muñoz-Garcia, F. (2017). *Advanced microeconomic theory: an intuitive approach with Final Examinationples*. MIT Press.
- Muñoz-Garcia, F. (2017). *Practice Exercises for Advanced Microeconomic Theory*. MIT Press.
- Dunaway, E., Strandholm, J. C., Espinola-Arredondo, A., & Munoz-Garcia, F. (2020). *Practice Exercises for Intermediate Microeconomic Theory*. MIT Press.

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

DISCIPLINE SPECIFIC CORE COURSE -14 (DSC-14): Economic Growth and Business Cycles

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Economic Growth and Business Cycles – ECON014	**4**	**3**	**1**	**0**	**Class 12th with Mathematics**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- This course introduces the students to the models of economic growth and business cycles.
- The literature on the differences in the growth rates across economies is discussed.
- Further, the student is exposed to the preliminaries of macroeconomic modelling through different growth models.
- It introduces business cycles through the Real Business Cycle and the New Keynesian approaches.

Learning outcomes

The Learning outcomes of this course are as follows:

- The student would understand the basic drivers of economic growth that are developed through the different approaches using exogenous, semi-endogenous and endogenous models.
- The student will be able to apprise and analyse better the business cycles and familiarise with the debates between the schools of macroeconomic thoughts like Real Business Cycles and New Keynesian Economics.

Syllabus

UNIT I: Introduction to Economic Growth (15 hours)
Introduction to economic growth, data on economic growth, stylised facts of eco- nomic growth. Economic growth and economic development, economic growth and income difference, absolute and conditional convergence.

UNIT II: Models of Economic Growth (15 hours)
Solow model and the steady state. Solow model with technology, growth accounting, Economics of ideas and innovation, Romer model, Growth through creative destruction, Growth and technology transfer, institutions, Simple endogenous growth model.

UNIT III: Business Cycles (15 hours)
Real business cycle model, productivity shocks and business cycle fluctuations, New Keynesian models, new Keynesian Short-run AS Phillips curve and dynamics IS curve. Comparison between business cycle models. Introduction to dynamic general equilibrium models.

Recommended readings

- Jones, Charles I and Vollrath, Dietrich (2013) *Introduction to Economic Growth*.
- W. W. Norton & Co.
- Aghion, Philippe and Howitt, Peter (2010) *The Economics of Growth*. Prentice Hall. Eastern Economy Edition.
- Mishkin, Frederic S (2017) *Macroeconomics: Policy and Practice*. Pearson.

- Jones, Charles I (2018) *Macroeconomics*. W W Norton & Co.
- Sorenson, Peter B and Whitta-Jacobson, Hans Jorgen (2010) *Introducing Advanced Macroeconomics: Growth and Business Cycles*. McGraw Hill Education
- Barro, R, Chu, A and Cozzie, G (2017), *Intermediate macroeconomics*, First Edn. Cengage Learning.
- Weil, David N (2014) *Economic Growth*. Routledge.
- Gordon, Robert J (2015) *Macroeconomics*. 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 -15 (DSC-15): Introductory Development Economics

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Introductory Development Economics – ECON015	**4**	**3**	**1**	**0**	**Class 12th with Mathematics**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- This course discusses the basic concept of growth and further links it up with alternative conceptions of development.
- It then proceeds to examine the aspects of poverty and inequality, not just in terms of income and wealth, but in terms of capabilities too.
- The axiomatic basis for inequality measurement is used to develop measures of inequality and poverty.
- It further explores the connections between growth and inequality.
- The course ends by linking political institutions to growth and inequality by discussing the role of the state in economic development and the informational and incentive problems that affect state governance.

Learning outcomes

The Learning outcomes of this course are as follows:

- The students would distinguish between growth and development and get an idea about the factors affecting the level of development as well as the process of economic development.
- Further, they comprehend and analyse various concepts and measures of underdevelopment including poverty and inequality.

Syllabus

UNIT I: Introducing Economic Development: Global Perspective (12 hours)
Conceptions of Economic Growth and Development; Concepts of economic growth and linking it up with alternative measures of development, including human development, documenting the international variation in these measures, comparing development trajectories across nations and within them.

UNIT II: Theories of Economic Development (12 hours)
Classic Theories of Economic Growth and Development - four approaches (linear- stages theories, structural change models, international dependence, neoclassical

UNIT III: The Strategy of Economic Development: Institutional Pathways (9 hours)
Balanced and Unbalanced growth, interlinkages, big-push and the role of markets and state, alternative institutional trajectories and their relationship with economic performance

UNIT IV: Poverty and Inequality (12 hours)
Definitions, Measures and Mechanisms, Inequality axioms and principles; a com- parison of commonly used diagrammatic and mathematical inequality measures, their deficiencies and usage; connections between

inequality and development; inequality trends at international level; conceptualisation of the poverty lines at domestic and international levels; poverty measurement; characteristics of the poor; capability approach to poverty; mechanisms that generate poverty traps and path dependence of growth processes.

Recommended readings

- Partha Dasgupa (2007), *Economics: A Very Short Introduction*, (AVSI), Oxford University Press.
- Perkins, D. H., Radelet, S. C., Lindauer, D. L., & Block, S. A. (2013). *Economics of Development*. 7th Edition, New York: WW Norton & Company.
- Todaro, M. P., & Smith, S. C. (2020). *Economic Development*. Pearson UK.
- Elinor Ostrom (1990), *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press.
- Gustav Ranis et.al, Economic Growth and Human Development (2000), *World Development* Vol. 28, No. 2, Elsevier Science Ltd.
- Pranab Bardhan (2010), *Awakening Giants, Feet of Clay: Assessing the Economic Rise of China and India*, OUP.
- Thomas Dietz, Elinor Ostrom and Paul C. Stern, 'The Struggle to Govern the Commons', *Science*, vol. 302, No. 5652 (Dec. 12, 2003), pp. 1907-1912.
- Mancur Olson, Jr. (1996), 'Big Bills Left on the Sidewalk: Why Some Nations are Rich, and Others Poor', *Journal of Economic Perspectives*, vol. 10, no. 2, pp 3-24.
- Albert O. Hirschman, *Rival Views of Market Society and Other Essays*, Ch. 3: 'Linkages in Economic Development'.
- Nurkse, Ragnar (1961). *Problems of Capital Formation in Underdeveloped Coun- tries*. New York: Oxford University Press. Chapter 3.
- Rodenstein Rodan, PN (1943) Problems of Industrialization of eastern and south eastern Europe, *Economic Journal*, vol LIII, p 202-11.
- Dani Rodrik (2009), One Economics, *Many Recipies: Globalization, Institutions and Economic Growth*, Princeton University Press.
- Andre Shleifer and Robert W. Vishny (1993), 'Corruption', *Quarterly Journal of Economics*, 108(3), pp 599-617.

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

SEMESTERS–VI

DEPARTMENT OF ECONOMICS

Category I

(B.A. Honours in Economics in three years)

DISCIPLINE SPECIFIC CORE COURSE -16 (DSC-16): International Trade

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical / Practice		
International Trade – ECON016	4	3	1	0	Class 12th with Mathematics	Introductory/Principles of Microeconomics

Learning Objectives

The Learning Objectives of this course are as follows:

- This course introduces the basics of international trade theory and examines the effects of trade policies for domestic and world welfare. It covers bother classical and new trade theories.
- This course develops a systematic exposition of models that try to explain the composition, direction, and consequences of international trade.
- Apart from the introduction to theoretical models, students will also be exposed to real-world examples and casestudies.

Learning outcomes

The Learning outcomes of this course are as follows:

- The students would be able to understand the main theoretical and empirical concepts in international trade that equip them with a thorough analytical grasp of trade theories, ranging from Ricardian comparative advantage to intra-industry trade.
- It familiarises students with the main issues in trade policy and with the basic features of theinternationaltradingregime.

Syllabus

UNIT I: Neoclassical Trade Theories (15 hours)
Ricardian trade theory of comparative advantage. Gains from trade. Comparative advantage with many goods; Specific factor model; income distribution and trade policy, international factor mobility models; Standard Trade Model, economic growth, immiserizing growth and intertemporal trade; Heckscher-Ohlin theory; factor price equalisation, Rybczynski and Stolper-Samuelson theorems, Heckscher- Ohlin-Vanek Model, Offercurve.

UNIT II: New trade theories and firms in the global economy (15 hours)
External Economies of Scale, learning curve, intra-industry trade, monopolistic competition and firm responses to trade; international Location of Production, horizontal and vertical multinationals; Gravity model, Firms in the global economy. Global value chain and offshoring of goods and services.

UNIT III: International Trade Policy Concerns (15 hours)
Instruments of trade policy, static welfare analysis of tariffs, quotas and subsidies. Equivalence of tariffs and quotas. Effective rate of protection. Export subsidies and countervailing duties; Oligopoly and International trade. Strategic tradepol-icy; International Agreements: Trade, Labour and Environment Multilateralism, WTO, RegionalTradeAgreementsandNewProtectionism

Recommended readings

- Feenstra, R., Taylor, A. (2014). *International Trade*, 3rd ed. Worth Publishers. (Abbreviation used:FT)
- Krugman, P., Obstfeld, M., Melitz, M. (2018). *International Economics - Theory and Policy*, 11th ed. Pearson Education. (Abbreviation used: KOM)
- Gandolfo, G. (2014), *International Trade Theory and Policy (with contribution fromFedericoTrionfetti*)2nded.,Springer.

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

DISCIPLINE SPECIFIC CORE COURSE -17 (DSC-17): Development Theory and Experience

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Development Theory and Experience – ECON017	**4**	**3**	**1**	**0**	**Class 12th with Mathematics**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- It highlights the dynamic interconnections between the social and economic aspects of the development process.
- In particular, the course deals with the macro and micro aspects of demography, fertility choices and gender bias.
- It also discusses the process of migration through elaborate models highlighting the rural-urban sectoral interrelationships.
- It describes the peculiar characteristics of rural institutions which shape contracts across labour, land and credit markets in the rural economy.
- It discusses the efficiency of such contracts even while they deviate from the traditional competitive marketcontracts.

Learning outcomes

The Learning outcomes of this course are as follows:

- This course updates the students the unprecedented progress that has been made in many parts of the developing world—but fully confronts the enormous problems and challenges experienced during the recent decades.
- The student would understand the wide diversity of development approaches adopted across the developing world, and the differing positions in the global economy held by developing countries.
- This will help them understand better the economic development policy and programmesacrossemployedbyWorldBankandnationaleconomies.

Syllabus

UNIT I: Demography, Gender and Development (12 hours)
Demographic concepts; birth and death rates, age structure, fertility and mortality; demographic transitions during the process of development; gender bias in preferences and outcomes and evidence on unequal treatment within households; connections between income, mortality, fertility choices and the impact of intra-household gender inequality (in allocation of resources) and labour markets as genderedinstitutions.

UNIT II: Migration and Development (9 hours)
Models of migration, sectoral dynamics and the relationship between rural and urban sectors.

UNIT III: Land, Labour and Credit Markets (12 hours)
The distribution of land ownership; land reform and its effects on productivity; contractual relationships between tenants and landlords; land acquisition; nutrition and labor productivity; informational problems and credit contracts; micro-finance; inter-linkages between rural factor markets.

UNIT IV: Institutions and coordination (12 hours)
The determinants of democracy; alternative institutional trajectories and their relationship with economic performance; within-country differences in the functioning of state institutions; state ownership and regulation; government failures and corruption.

Recommended readings

- Acemoglu, D., & Robinson, J. A. (2006). *Economic origins of dictatorship and democracy*. Cambridge UniversityPress.
- Robinson, J. A., & Acemoglu, D. (2012). *Why nations fail: The origins of power, prosperity and poverty*. London:Profile.
- Perkins, D. H., Radelet, S. C., Lindauer, D. L., & Block, S. A. (2013). *Economics of Development*. 7th Edition, New York: WW Norton &Company.
- Todaro, M. P., & Smith, S. C. (2020). *Economic Development*. PearsonUK.
- Debraj Ray (2009), *Development Economics*, Oxford University P r e s s
- RobertT.Jensen(2010),*EconomicOpportunitiesandDifferencesinHumanCapital:ExperimentalEvidenceforIndia*,NBERWorkingPaperNo.16021.
- Pitt, Mark, Mark Rosenzweig and Nazmul Hassan. (1990). "Productivity, Health and Inequality in the Intrahousehold Distribution of Food in Low- income Countries."*AmericanEconomicReview*,80(5):1130-1156.
- Elson, Diane (1999) Labour markets as gendered institutions: Equality, Efficiency andEmpowermentIssues,*WorldDevelopment*,vol27(3),p611-627.

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

DISCIPLINE SPECIFIC CORE COURSE -18 (DSC-18): Indian Growth and Development

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Indian Growth and Development	**4**	**3**	**1**	**0**	**Class 12th with Mathematics**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- Using appropriate analytical frameworks, this course reviews major trends in economic indicators of macro and development issues and policy debates in India in the post-Independence period, with particular emphasis on paradigm shifts and turning points.
- This course intends to give an introduction to students as to how they could explore problems related to the Indian economy by familiarizing them with the research studies on areas relating to economic development and policy in India with an emphasis on contemporary debates.

Learning outcomes

The Learning outcomes of this course are as follows:

- The students should be able to understand the development paradigm adopted in India since independence and evaluate its impact on economic as well as social indicators of progress.
- The students will acquire ability to explore current policy debates and contribute to policy making in an informed way using relevantdatabases.

Syllabus

UNIT I: Economic Growth since Independence (12 hours)
Major features of the economy at independence; growth under different policy regimes—goals, constraints, institutions and policy framework; an assessment of performance—sustainability and regional contrasts; structural change, savings and investment

UNIT II: Sectoral Performances and Concerns (12 hours)
Issuesinagriculture,industryandservices.

UNIT III: Inclusive Growth - trends and patterns, Distributional Issues and Policies Demography, Poverty and Unemployment (9 hours)

UNIT IV: Economic Policies and their Impact (12 hours)
Evolution of macroeconomic framework applied in Indian economy and its impact, fiscal policy; financial and monetary policies; trade and investment policy, five-year plans

Recommended readings

- Ahluwalia,M.S.(2019),"India'seconomicreforms:AchievementsandNextSteps", *Asian Economic Policy Review*, 14(1), 46-62.
- Bosworth, B., Collins, S. M., & Virmani, A. (2007). *Sources of growth in the Indian economy*. Working Paper no. 12901,NBER.

- Pulapre Balakrishnan, (2007), "The Recovery of India: Economic Growth in the Nehru Era", *Economic and Political Weekly*, November 10-23, 2007.
- Krishnamurty, K. (2002), Macroeconometric Models for India: Past, Present and Prospects *Economic and Political Weekly*, October 19, 2002.
- Arvind Subramanian and Josh Felman (2021) India's Stalled Rise-How the State HasStifledGrowth,*ForeignAffairs*on14.12.2021.
- Acharya, S. and Mehrotra, S. (2020), The Agricultural Market Reforms: Is there a trade-off between efficiency and equality? Working Paper Series, Institute of HumanDevelopment.
- Shah, Mihir (2007), Rural Credit in 20th Century India: Overview of History and Perspectives,*EconomicandPoliticalWeekly*,Vol.42,IssueNo.15,14April2007.
- NagarajR(2013),India'sDreamRunUnderstandingtheBoomandItsAftermath,
- *Economic and Political Weekly* Vol 48, No. 20,May 18, 2013.
- Chanda, R. (2019), India's Services Sector; trends, opportunities and challenges,in Uma Kapila(ed.), *Indian economy-2: Macroeconomic policies, Sectoral Develop- ments andPerformance*.
- Dipak Mazumdar and Sandip Sarkar (2009) "The Employment Problem in India and the Phenomenon of the 'Missing Middle' *The Indian Journal of Labour Eco- nomics*, Vol. 52, No. 1,2009
- Chakraborty, Achin, (2015), Reforming Labour Markets in States: Revisiting the FutilityThesis,*EconomicandPoliticalWeekly*,May16.
- Thomas, J. J. (2020). 'Labour Market Changes in India, 2005–18', *Economic and Political Weekly*, 55(34),57.
- James, K.S., &Srinivas Goli (2016), "Demographic Changes in India: Is the Coun- try Prepared for the Challenge?" *Brown Journal of World Affairs*, Fall/Winter 2016, Volume XXIII, IssueI.
- Desai, S. (2015), "Demographic deposit, dividend and debt", *The Indian Journal of Labour Economics*, 58, 217-232.
- Drèze,JandKhera,R.,2016,'RecentSocialSecurityInitiativesinIndia'Available athttp://dx.doi.org/10.2139/ssrn.2800699.
- Vijay Joshi, (2016), *India's Long Road: The Search for Prosperity*, Allen Lane, Gurgaon, Ch2.
- Rakesh Mohan, (2019), *Moving India to a new Growth Trajectory: Need for a ComprehensiveBigPush*,BrookingsIndia,Section1and2,9-30.
- Jagdish Bhagwati and Arvind Panagariya, (2012), *India's Tryst with Destiny*, CollinsBusiness,Noida,pp.4-5,32-38.
- PanagariyaA(2020),*IndiaUnlimited:ReclaimingtheLostGlory*,Chapter2.
- Jean Dreze and Amartya Sen, (2013), *India: An Uncertain Glory*, Allen Lane, chapters 2, 3 (pp. 72-80only).
- Kumar, R., & Patibandla, M. (2009). *Institutional dynamics and the evolution of the Indian economy*,Springer.
- McCartney,M.(2019).*TheIndianEconomy*.AgendaPublishingLimited.
- Goyal, A. (Ed.). (2019). *A Concise Handbook of the Indian Economy in the 21st Century*.OxfordUniversityPress.

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Semester VII Economics (H)

6.19 Quantitative Methods

Course title	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical		
Quantitative Methods ECON019	**4**	**3**	**0**	**1**	**Class 12th**	**NIL**

Learning Objectives

- This course will equip students with the necessary tools to conduct quantitative research, with a strong emphasis on causal inference, regression techniques, time-series analysis and big data applications.
- Students will also gain hands-on experience with empirical datasets related to India and learn how to analyse them using accessible software such as R, Python, STATA etc.

Learning outcomes

- Students will be able to analyse data patterns and answer questions about causality in observed data correlations.
- Students will get a foundation for independent research using the tools taught in the course.

Syllabus

UNIT I: Methods of Causal Inference (15 hours)
Causality vs. Correlation, Potential Outcomes Framework, Randomized Control Trials (RCTs), Instrumental Variables (IV), Regression Discontinuity Design (RDD), Difference-in-Differences (DiD), Matching Methods (Propensity Score Matching, Synthetic Controls), Case Studies and Applications

UNIT II: Regression with Panel Data and Binary Dependent Variables (11 hours)
Pooled OLS vs Panel Data Models, Fixed Effects vs Random Effects Models, Linear Probability Model (LPM) and its Limitations, Logit and Probit Models, High-dimensional and high frequency data and its applications in economic research.

UNIT III: Analysis of Time-Series Data (10 hours)
Stationarity and Unit Roots, Autoregressive(AR) and Moving Average(MA) Models, ARIMA Models and Forecasting, Vector Autoregression (VAR) and Impulse Response Functions, Cointegration and Error Correction Models, Structural Breaks and Policy Impact Analysis

UNIT IV: Data Collection, Textual Data, Network Data and Spatial Data (9 hours)
Primary vs. Secondary Data, Survey Design and Sampling, Understanding Economic and Social Datasets, Introduction to Unstructured Data, Text as Data: Sentiment Analysis, Topic Modeling, Network Analysis in Economics, Spatial Data and Geographic Information Systems (GIS), Applications in Development Economics and Political Economy.

Practical & Lab Sessions: Introduction to a software like R/Python etc (Data Wrangling, Visualization, Regression Analysis), Working with Large Datasets (Census, NSS, NFHS, Satellite Data, etc.), Empirical Project: Analyzing a Research Question Using Real Data, Replication of Empirical Papers Using Indian Data Sources

Recommended Readings:

- Angrist, J. D., & Pischke, J. S, Mastering Metrics (2014)
- Angrist, J. D., & Pischke, J. S. Mostly Harmless Econometrics, Princeton University Press. (2014)
- Athey & Imbens : Machine Learning Methods that Economists Should Know About (2019)
- Census of India, NSS, NFHS Data
- Chernozhukov, Hansen, Kallus, Splindler and Syrgkanis: Applied Causal Inference Powered by ML and AI (2025)
- Cunningham, S. Causal inference: The Mixtape (2018)
- Donaldson & Storeygard: The View from Above: Applications of Satellite Data in Economics (2016)
- Gelman, Hill & Vehtari: Regression and Other Stories (2021)
- Glennerster & Takavarasha: Running Randomized Evaluations (2014)
- Huntington-Klein, N. The effect: An introduction to research design and causality. Chapman and Hall/CRC (2021)
- Irizarry: Introduction to Data Science with R (2024)
- RBI, IMF, and World Bank Datasets
- Remote Sensing and Satellite Data for Economic Research
- Sargent & Stachurski, A First Course in Quantitative Economics with Python
- Stock & Watson:Introduction to Econometrics (2020)
- Wooldridge: Introductory Econometrics (2019)

Semester VIII Economics (H)

6.20 Economic Development and Policy in India

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Economic Development and Policy in India – ECON020	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- This course will provide an introduction to economic issues related to the Indian economy by familiarizing them with the research studies on in the area of economic development and policy in India with an emphasis on contemporary debates.
- In particular, the course will help students to understand the application of economic theory, and the statistical and econometric techniques that they are taught in other courses.
- The readings provided are indicative. They would depend each year on the nature of current policy discourse.

Learning outcomes

The Learning outcomes of this course are as follows:

- Students will have ability to explore current policy debates and contribute to policy- making in an informed way using relevant databases.
- They will also learn how to conduct independent research in these areas.

Syllabus

UNIT I: Development Policy and Experience (10 hours)
Inequalities, health and nutrition, education

UNIT II: Policies and performance in agriculture (15 hours)
Growth; productivity; agrarian structure and technology; pricing, procurement and farm incomes; food security; agricultural trade.

UNIT III: Policies and performance in industry and services (10 hours)
Growth; productivity; structural changes; diversification; industrial labour

UNIT IV: Globalization, International agreements and climate change (10 hours).

Recommended Readings:

- Kumar, Dharma (2005) ed. CEHI Vol II, revised version, the article on ”The Indian Economy 1970 to 2003”.
- Subramanian, Arvind and Rodrik, Dani (2005). From Hindu Rate of Growth to Productivity Surge: The Mystery of the Indian Growth Transition *IMF Staff Papers* Vol 52, No 2.
- Bhattacharjea, Aditya (2022). Industrial Policy in India Since Independence. Indian Economic Review. Vol.57 pp 567-598.

- Lamba, Rohit and A. Subramanian (2020) "Dynamism with Incommensurate Development: The Distinctive Indian Model" *Journal of Economic Perspectives* Volume 34, Number 1 (Winter 2020), p.3–30.
- Kumar, M. and Jha, P. (2025). "India After 75 Years of Independence: Reflections on Development and Persistent Challenges," Agrarian South: Journal of Political Economy, vol. 14(2)
- Aiyar, A., Rahman, A., & Pingali, P. (2021). India's rural transformation and rising obesity burden. World Development, 138, 105258.
- Meenakshi, J. V., (2016), "Trends and patterns in the triple burden of malnutrition in India", *Agricultural Economics*, *47*(S1), 115-134.
- Kingdon, G.G. (2020). The private schooling phenomenon in India: A review. *The Journal of Development Studies*, *56* (10), 1795-1817
- Das, V. K. (2016). Agricultural Productivity Growth In India: An Analysis Accounting For Different Land Types. *The Journal of Developing Areas*, *50*(2), 349–366. http://www.jstor.org/stable/24737407
- CHAND, R. (2012). Development Policies and Agricultural Markets. *Economic and Political Weekly*, *47*(52), 53–63. http://www.jstor.org/stable/41720551
- Ghosh, J. and C.P. Chandrasekhar (2009), The costs of 'coupling': the global crisis and the Indian economy, *Cambridge Journal of Economics*, Volume 33, Issue 4, July 2009, p. 725–739.
- Sekhar, C. S. C. & Thapa, N. (2023). Rural market imperfections in India: Revisiting old debates with new evidence. Development Policy Review, 00, e12708. https://doi.org/10.1111/dpr.12708
- Acharya, Rajat (2012), "India's Trade and Exchange-Rate Policies: Understanding the Bop Crisis and the Reforms Thereafter" in Ghate, Chetan (ed.), *The Oxford Handbook of Indian Economy*, Oxford University Press.
- Dev, M. (2018) *Transformation of Indian Agriculture? Growth, Inclusiveness and Sustainability*. Working paper 2018-026, Indira Gandhi Institute of Development Research, Mumbai.
- Thakur, A. N. (2023). Public Procurement, Land Ownership and Agricultural Price Variation Across States: The Case of Paddy Cultivation in India. Agrarian South: Journal of Political Economy, 12(3), 319-351. https://doi.org/10.1177/22779760231188582
- Birthal, P. Negi, D. Khan, Md. and Agarwal, S. (2015): Is Indian agriculture be- coming resilient to droughts? Evidence from rice production systems, *Food Policy* vol. 56, p. 1-12.
- Nagaraj, R. (2017), Economic Reforms and Manufacturing Sector Growth. *Economic and Political Weekly*.
- Mukherjee, Deeparghya (2021) Is India Moving Up the Global Value Chain? A Sectoral Study of Indian Exports. *Economic and Political Weekly*, 56(20), 12-15.
- Basu, Deepankar and Das, Debarshi, Profitability in India's Organized Manufacturing Sector: The Role of Technology, Distribution and Demand, *Cambridge Journal of Economics*, Volume 42, Issue 1, January 2018, p. 137–153. https://doi.org/10.1093/cje/bew068
- Nayyar, Gaurav (2013). Inside the black box of services: evidence from India, *Cambridge Journal of Economics*, Volume 37, Issue 1, January 2013, p. 143–170.
- Bhattacharjea, A. (2021), Labour market flexibility in Indian manufacturing: A critical survey of the literature, *International Labour Review*, 160(2), 197-217.
- Das, S.; Ghate, C. and Robertson, P. (2015): Remoteness, urbanization and India's unbalanced growth, *World Development*, 66, February 2015, 572-287.
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