

Jadavpur University

Faculty of Arts

**Department of Economics
Syllabus for**

**Undergraduate (Economics Honours), Compulsory ED Mathematics
Course, Postgraduate (Economics), M. Phil (Economics)
and Ph.D. (Economics) Courses**

2016

WELCOME TO THE DEPARTMENT OF ECONOMICS

Started in 1956 with Professor Amartya Kumar Sen as its first Head, the Department of Economics of Jadavpur University has emerged as a well-known and premier centre for excellence in economics teaching, research and advising over the years. The Department has been awarded the status of Centre for Advanced Studies in Economics by the UGC with effect from April 1, 2005, a status that has so far been conferred to only four such Economics Departments in India. The Department is a part of the Faculty of Arts of Jadavpur University. The department's teaching programmes include B.A (Honours), M.A, M.Phil and Ph.D. courses. The Department has introduced semester system at all the four levels of its teaching programme.

The Department of Economics is fortunate to have some of the best minds and renowned Teachers in the country. Majority of the faculty members have travelled abroad to participate in academic discourses. They not only have proved their abilities by contributing to the subject through publication in professional journals and of books, but are also regularly consulted for their expertise by national as well as state governments, policy makers, multinational funding agencies and UN bodies. They also regularly act as members of Editorial Boards of national and International Journals.

Faculty members of the Department have received international honours such as Fulbright scholarship, Ford Foundation scholarship, World Bank, GDN (Global Department Network) Best Research Award, as well as national honours including EXIM (Export-Import) Bank Award, Mahalanobis Memorial Medal and also have the honour of being contributor to the work of the IPCC (Inter-Government Panel on Climate Change) – the Noble Peace Prize winning Panel of 2007. Student profile is equally good. Given the state of infrastructure in the Department, more than 100 students are admitted every year. The students can take advantage of overseas university- exchange programmes, high valued special scholarship. The Department has large and well placed alumni spread across institutions and countries. They are the best from within the state and neighbouring states and countries. The Department also has a special arrangement with SAARC countries to admit students.

Teaching modules are updated from time to time to accommodate frontier areas of the subject and changing needs of the time. The Department reviews the syllabus and contents continuously and introduces minor changes regularly but this new revision with substantial changes is coming after five years. The courses provide hands on experience and research orientation for the students. The new revised syllabus is at par with the recommendations of the UGC subcommittee on economics syllabus as well as the latest developments of the subject. The present revised version shall be applicable from the academic session 2016-17.

About the Syllabus

In this new revised syllabus, the Department changes the total marks for B.A (Honours) to 1200, plus 100 marks for ED (Compulsory)-Mathematics. This is done by introducing a new Principles-III course on Introduction to Economic Systems and Thought, and a new Course on Mathematics for Economics at the UG level. The existing UG course on Classical Political Economy has been expanded to a course entitled Capitalism, Socialism and Mixed Economic Systems to be taught at semester V of the UG course. The revision has been effected to give the students wider vision of the working of contemporary world economy and to strengthen the base of mathematical training to our undergraduate students. The M.Phil and Ph.D. qualifying courses have remained unchanged at 150 each. For the M.A. Course, the new syllabus keeps the total marks at 850 and introduces new optional papers to provide a wider menu for choice by the PG students for strengthening their specialization

Faculties and Specialization

Name	Specialisation	Email Id
Prof. Ajitava Raychaudhuri	International Economics, Development Economics, Public Economics	ajitaval@vsnl.net ajitaval@gmail.com
Prof. Biswajit Chatterjee	Macroeconomics, International Economics, Indian Economic Development	chatterjeeb@vsnl.net biswajit3@hotmail.com
Prof. Joyashree Roy	Resource and Environmental Economics, Climate Change, Application of Quantitative Methods in Economics	joyashreeju@gmail.com
Prof. Gautam Gupta	Environmental Economics, Experimental Economics	gautamju@yahoo.com
Prof. Rajat Acharyya	International Economics, Economic Theory, Health Economics	rajat.acharyya@gmail.com
Prof. Prabirjit Sarkar	Trade and Development Issues	prabirjit@gmail.com
Prof. Basabi Bhattacharya	Financial Economics, Development Economics	basabi54@gmail.com
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Prof. Vivekananda Mukherjee	Public Economics, Environment Economics, Economic Theory	mukhervivek@hotmail.com vivekju@yahoo.co.in
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Undergraduate Programme: BA (Honours) in Economics Revised Syllabus 2016

- **Course Structure**

Honours (Economics) 1200 marks

ED (Mathematics) 100 marks

- Each paper will be covered in 40-45 lecture periods (including continuous evaluation/internal assessment) of 50 minutes duration each; Four (4) classes per week for each of the papers

- **Sequencing of Courses**

Semester	Course Name				
I	Principles of Economics I UG/Eco-11	Principles of Economics II UG/Eco-12	Statistics I UG/Eco-13	Mathematics for Economics UG/Eco-14	Principles of Economics III UG/Eco-15
II	Microeconomic Theory I UG/Eco-21	Statistics II UG/Eco-22	Mathematical Economics I UG/Eco-23	Mathematical Economics II UG/Eco-24	Mathematics I ED Course ED 1.1
III	Microeconomic Theory II UG/Eco-31	General Equilibrium and Welfare Economics UG/ECO-32	Econometrics UG/ECO-33	Macroeconomics I UG/ECO-34	Mathematics II ED Course ED 2.1
IV	International Trade I UG/ECO-41	Macroeconomics II UG/ECO-42	Applied Economics UG/ECO-43	Development Economics UG/ECO-44	
V	Public Economics UG/ECO-51	Capitalist, Socialist and Mixed Economic Systems UG/ECO-52	International Trade II: Theory of Balance of Payments and Exchange Rate UG/ECO-53	Project (Part A): Formulation and Survey* UG/ECO-64	
VI	Resource and Environmental Economics UG/ECO-61	Financial Economics UG/ECO-62	Indian Economic Development UG/ECO-63	Project (Part B): Report and Assessment UG/ECO-64	

*There shall be no evaluation of this paper in this semester

- The paper PROJECT will be in the nature of group project with each group being supervised by one teacher. The group division, project topic selection and formulation of the project work and surveys will commence in Semester V. The project reports are to be submitted by all groups towards the end of Semester VI for evaluation.

FIRST YEAR SEMESTER I

Course No. UG/Eco-11: Principles of Economics I

Course description:

The objective of the course is to provide an intuitive overview of what microeconomists do and how they go about thinking through the problems they deal with. In a broad sense it provides an intuitive platform for what students will learn in the courses that follow –general equilibrium, international trade, public economics, environmental economics etc. For many young undergraduates, economics is an incoherent combination of models, statistical techniques and descriptive stories about economies. Our aim is to provide a perspective that together with the corresponding Principles course in Macroeconomics will enable the students to see how the courses they take in the subsequent semesters fit into a coherent whole, like a jigsaw puzzle.

Mathematical requirements: Use of graphs and elementary algebra

Examinations: Mainly problems and analysis

Total number of lectures: 44 + Tutorials + Problems

Course Description

1. Introduction: Scarcity and efficiency- the twin themes of economics ; difference between microeconomics and macroeconomics; thinking like an economist – marginal benefit and marginal cost; the role of property rights in markets; markets and government in a mixed economy **(8 lectures)**
2. The elementary theory of demand : determinants of household demand ; market demand and its importance; shifts in the market demand curve **(6 lectures)**
3. The elementary theory of supply: factors influencing supply; derivation of the supply curve; shifts in the supply curve **(6 lectures)**
4. The elementary theory of market price: determination of equilibrium price in a competitive market ; the effect of shifts in demand and supply; the excess demand function **(6 lectures)**
5. The Economy as a whole: The interaction among markets: general and partial analysis ; from macro to microeconomics **(6 lectures)**
6. Applications to International Trade: Gains from trade; exchange rates; tariffs and the gains from trade **(4 lectures)**
7. Applications to Public Economics: Taxes and Efficiency: Efficiency versus fairness of taxation **(4 lectures)**

8. Applications to Environmental Economics: Public versus private goods ; externalities and resulting inefficiency; policies to correct externalities (4 lectures)

Textbook:

1. Richard G. Lipsey. *An Introduction to Positive Economics*, London, Weidenfeld and Nicolson [1963].

Supporting Textbooks:

1. R. Preston McAfee and Tracy R. Lewis. *An Introduction to Economic Analysis*, Flat World Knowledge, L.L.C., 2009.
2. Paul A. Samuelson and William D. Nordhaus. *Economics*, Tata McGraw Hill Edition 1998.

Course No. UG/Eco-12: Principles of Economics II

Total Number of Lectures: 44 + Tutorials + Problems

Course Description

The proposed course on **Principles of Economics II** to be introduced in the first semester of the BA Economics (Honours) course is aimed at introducing the students to some of the events taking place in the policy space of the Indian Economy in terms of language common in the economic theory. Macroeconomics deals with the aggregate economy, both closed and open. Economic policies that are regularly highlighted in print and electronic media are largely based on some underlying macroeconomic theoretical concepts. The purpose of this course will be to build up a theoretical understanding based on basic supply demand mechanism, which will demystify events like growth, unemployment, inflation, fiscal deficits, monetary policies, Balance of trade, exchange rate movements etc.

Syllabus Outline:

Topic 1: Introduction to Markets and how they work- Determinants of demand and supply

Topic 2: Macroeconomic data- National Income and cost of living

Topic 3: Concept of Growth- Role of savings, investment and financial intermediation

Topic 4: Concept of Unemployment- Types and their characteristics

Topic 5: Monetary system- definitions of money and determinants of money supply

Topic 6: Government sector- Different concepts of deficits and their macro implications

Topic 7: Theory of Aggregate Demand- components and their interrelations like crowding out

Topic 8: Theory of Aggregate Supply- Determinants of supply and shift factors

Topic 9: Inflation and Unemployment- Policy issues

Topic 10: Open economy- Balance of Payments and exchange rates

Each topic will be complemented by discussion of some actual policy events, mainly from Indian economy, but also may be taken from some other economies.

Textbook:

N. Gregory Mankiw. *Principles of Macroeconomics*. Indian Reprint by Thompson South-Western, 2007.

Supplementary Readings and Data Sources:

1. J.R. Hicks. *The Social Framework: An Introduction to Economics*, Clarendon Press; 3rd Edition (1960)
2. *Economic Survey*, GoI, Various years
3. *RBI Report on Currency and Finance*
4. *RBI Bulletin*
5. *RBI Handbook of Statistics on Indian Economy*
6. Selected articles from *Economic Times* and *Economic and Political Weekly*

Course No. UG/Eco-13: Statistics I**Total Number of Lectures: 45+ Tutorials + Problems**

1. Nature of statistical data –inaccuracies and approximation, interpolation Newton's forward, backward and Lagrangian (5)
2. Tabular and graphical presentation of non-frequency type data (4)
3. Univariate frequency distributions and their graphical representation (3)
4. Measures of Central tendency-The mean, median mode and other quartiles (4)
5. Measures of Dispersion (3)
6. Moments, Skewness and Kurtosis (4)
7. Bivariate frequency distribution-Simple and multiple correlation and regression (6)
8. ANOVA Tables (3)
9. Time series – components, measurement of trend and statistical fluctuations (5)
10. Index Numbers – Price, quantity (4)
11. Vital statistics – measures of crude birth rate, death rate, age sex specific birth and death rates; infant mortality rate; construction and use of life table. (4)

Suggested Readings:

1. J. F. Kenney and E. S. Keeping. *Mathematical Statistics: Part 1 & Part II*, Chapman and Hall, New York, 1954.
2. F. E. Croxton, D. J. Cowden and S. Klein. *Applied Statistics*, Prentice Hall; *Applied General Statistics*. 3rd ed., Prentice-Hall, Inc., 1960.
3. R.G.Hogg and A.T.Craig. *Introduction to Mathematical Statistics*, Prentice Hall; 6th Edition, 2004
4. A. M. Goon, M. K. Gupta and B. Dasgupta. *Fundamentals of Statistics*, The World Press, 1996

Course No. UG/Eco-14: Mathematics for Economics**Total number of Lectures: 45+Tutorials+ problems**

1. **Logic:** Propositions and truth values; Tautologies and Contradictions; Deduction and Induction (4 lectures)
2. **Set Theory:** Definition of a set and discussion of related concepts; Set types; Operations on sets; Nested sets; Cartesian product; Concept of Euclidean Space (8 lectures)

3. **Functions and Correspondences:** Definitions; Concepts of 'range', 'domain' and 'mapping'; Explicit and implicit functions; Types of functions and correspondences (polynomial, exponential, logarithmic, power etc) (**4 lectures**)

4. Brief Review of Differential and Integral Calculus: Discussion of concepts of 'limits and continuity', 'derivative', 'partial derivative', 'total differential' and 'integral' (stress on both intuitive and mathematical understanding); Applications of differential and integral calculus to the study of functions: slope and curvature of functions, distinction between concave and convex functions; maxima and minima, area under a curve etc (**6 lectures**)

5. Mean value theorems of Derivative; Polynomial approximation of functions; Taylor's formula with remainder. (**3 Lectures**)

6. Other Topics: Permutations and Combinations; Various types of series (arithmetic, geometric, logarithmic, exponential, Taylor's; linearisation of non linear series and McLaurin's); Brief review of trigonometric functions and associated curves (**7 lectures**)

7. Euclidian Space: Vectors, Points, Distance formula, Algebra of Vectors, Lines and Planes (**3 Lectures**)

8. System of simultaneous linear equations and matrix algebra including addition, subtraction multiplication, laws of matrix algebra, transpose, square matrices, the determinant of a matrix, properties of determinants, cofactors, Cramer's rule. (**7 lectures**)

References

1. Apostol T.M. *Calculus, Volume 1, One-variable calculus, with an introduction to linear algebra*, (1967) Wiley, ISBN 0-536-00005-0, ISBN 978-0-471-00005-1.

Course No. UG/Eco-15: Principles of Economics III

(Introduction to Economic Systems and Thought)

Total number of Lectures: 45+Tutorials

1. Tracing the Development from Hunting Society of Primitive Communism to Modern Communism:

Emergence of private property

Rise of feudalism-mode of extraction of surplus through extra-market power

Transition from feudalism to capitalism-mode of extraction of surplus through market power

Emergence of socialism: social mode of extraction of surplus and socialist planning

Mixed Economic Planning in Less Developed Capitalist Countries

Social Democracy in Developed Countries

References:

1. Alfred Saad-Filho and Ben Fine. *Marx's Capital*, Fifth Edition, Pluto Press, 2010.

2. Peter Singer. *Marx: A Very Short Introduction*, Oxford University Press, 2001.
3. Michel Newman. *Socialism: A Very Short Introduction*, Oxford University Press, 2005.
4. Robert L. Heilbroner. *The Worldly Philosophers: The Lives, Times and Ideas of Great Economic Thinkers*, 7th Edition, Simon & Schuster, 1999.

2. Functioning of the capitalist system: Two major alternative approaches

(a) Classical Political Approach of Smith, Ricardo and Marx:

Two major classes defined in relations to production: the workers and the capitalists;
labour is the source of all value-labour theory of value.

References:

1. Alfred Saad-Filho and Ben Fine. *Marx's Capital*, Fifth Edition, Pluto Press 2010.
2. Peter Singer. *Marx: A Very Short Introduction*, Oxford University Press, 2005.
3. Michel Newman. *Socialism: A Very Short Introduction*, Oxford University Press, 2005.
4. Robert L. Heilbroner. *The Worldly Philosophers: The Lives, Times and Ideas of Great Economic Thinkers*, 7th Edition, Simon and Schuster, 1999.
5. Richard D. Wolff and Stephen A. Resnick. *Contending Economic Theories: Neoclassical, Keynesian and Marxian*, The MIT Press, Cambridge, Massachusetts, 2012.
6. Joseph Stiglitz. *Whither Socialism?* The MIT Press, 1994.

(b) Neoclassical Economics and Capitalism

Employment of Resources and Capitalism

Allocation of Resources and Capitalism

Critique of Neoclassical Economics: The Necessity of Planning

References: 1. P.A.Samuelson. *Economics*, 19th Edition, Mc Graw Hill Irwin, 2010.

2. Richard Lipsey. *An Introduction to Positive Economics*, Oxford University Press, 1995

3. Theories of Marx, Kalecki and Keynes and Capitalism

Sources of Chaos and Instability in Capitalist Societies

Role of Stabilisation Programmes and Planning

Inequality and Poverty under Capitalism

References: 1. Alfred Saad-Filho and Ben Fine. *Marx's Capital*, Fifth Edition, Pluto Press 2010.

2. Michel Kalecki. *Theory of Economic Dynamics*, Monthly Review Press Classics, 2011.
3. P.A.Samuelson. *Economics*, 19th Edition, Mc Graw Hill Irwin, 2010.
4. Richard Lipsey. *An Introduction to Positive Economics*, Oxford University Press, 1995.

4. Evidences For and Against the Two Competing Theories

Recent Performance of Capitalist economies: Japan, Europe and USA

Performance of Emerging market Economies: India, South-East Asia and China

- References:**
1. David Faith. *The Japanese Economy*, Oxford University Press, 2005
 2. Bai Gao. *Japan's Economic Dilemma*, Cambridge University Press, 2001
 3. Richard Koo. *The Holy Grail of Macroeconomics: Lesson from Japan's Great Recession*, Wiley, 2009
 4. Paul Krugman. *Depression Economics Returns*, W. W. Norton and Company, 2008.
 5. Barry Eichengreen. *The European Economy since 1945: Coordinated Capitalism and Beyond*, Princeton University Press, 2007.
 6. Phillip Lane. *The European Sovereign Debt Crisis*, Journal of Economic Perspectives, 2012.
 7. Leszek Balcerowicz, Andrej Rzonca, Lech Kalina and Aleksander Laszek. *Economic Growth in the European Union*, Lisbon Economic Council, 2013.
 8. Joseph Stiglitz. *The Price of Inequality: How Today's Divided Society Endangers Our Future*, W.W. Norton and Company, New York, 2013.
 9. Joseph Stiglitz. *Freefall: America, Free Market and the Sinking of the World Economy*, W.W. Norton and Company, January 19, 2010.
 10. Paul Krugman. *The Conscience of a Liberal: Reclaiming America from the Right*, Penguin Books, New York, 2009.
 11. Thomas Piketty. *Capital in the Twenty-First Century*. Belknap Press of Harvard University Press, 2014.

5. Global Financial Capital and Capitalism: An Assessment

References:

1. Jagdish Bhagwati. "The Capital Myth: The Difference between Trade in Widgets and Dollars", Foreign Affairs, May/June 1998.
2. Dani Rodrik and Arvind Subramanian. "We must curb international flows of capital", February 5, Financial Times.
3. John Bellamy Foster and Robert W. McChesney. "The Endless Crisis: How Monopoly Finance Capital Produces Stagnation and Upheaval from the USA to China", Monthly Review Press, New York, 2012.

FIRST YEAR SEMESTER II

Course No. UG/Eco-21: Microeconomic Theory I

Total Number of Lectures: 42+ Tutorials + Problems

1. Rational consumer choice revisited (8)

Allocation problem of a consumer: Most preferred bundle and its properties; A graphical analysis of the decomposition of the effect of a price change into income and substitution effects; Marshallian and compensated demand curves; Price consumption curve, income

consumption curve and Engel Curve; Homothetic tastes; Properties of demand function; Gross and net substitutes and complements.

2. Ordinal utility function and Optimum consumption (6)

Preference ordering and properties of ordinal utility; Existence of utility function; different utility functions and their properties; Compensating and equivalent variation.

3. Digressions on Choices (2)

Allocation of time: labour supply function; Inter-temporal choice: savings function;

4. Revealed Preference approach (4)

5. Choice under uncertainty (8)

6. Behaviour of Perfectly Competitive Firms Revisited (6)

Short run and long run equilibria; External economies and diseconomies of scale and the industry supply curve.

7. Theory of Rent, Wages and Profits (6)

Ricardo's scarcity rent; Modern theory of rent; Marginal productivity theorem; Product Exhaustion theorem: Euler's and Clark-Wicksteed-Walras' proofs; Wages and profits (as residual claim).

Suggested Readings:

1. Hal Varian. *Intermediate Microeconomics*, 3rd edition, W. W. Norton and Company, 1993.
2. Hugh Gravelle and Ray Rees. *Microeconomics*, Prentice Hall (UK); 3rd edition, 2004.

Course No. UG/Eco-22: Statistics II

Total number of lectures: 45+Tutorials+ problems

1. Probability and Distribution (11 lectures)

- (a) Introduction to probability theory
- (b) Probability measure/ Probability set function.
- (c) Probability Space.
- (d) Conditional probability and independence, Bayes Theorem.
- (e) Random variables: discrete and continuous types.
- (f) Properties of distribution functions, mass functions and density functions.
- (g) Expectation of a random variable

- (h) Transformations of variables: discrete and continuous types.
- (i) Extensions of the change of variable techniques.
- (j) Expectations of functions of random variable. Some special expectations : moment generating function
- (k) Convergence in Probability

2. Multivariate Distributions (6 lectures)

- (a) Distribution of two random variables.
- (b) Continuous distributions and Expectations.
- (c) The correlation coefficient.
- (d) Independent random variables.
- (e) Extension to several random variables.

3. Some Special Distributions: (12 lectures)

- (a) Uniform distribution, Binomial and related Distributions; Poisson, Normal and Bivariate Normal , Beta, Chi-Square, t and F
- (b) Convergence in Distribution.
- (c) Limiting Distributions: Central Limit Theorem

4. Distributions of Functions of Random Variables(5 lectures)

- (a) Sampling Theory.
- (b) Distributions of sample mean and sample variance.

5. Introduction to Statistical Inference(11 lectures)

- (a) Point Estimation.
- (b) Confidence Intervals for means.
- (c) Confidence Interval for difference of means
- (d) Test of statistical hypothesis, Z test, t test, Chi-square test, F test
- (f) Anova
- (g) Some non-parametric test: test for Goodness of fit, test of independence, test of homogeneity

Suggested Readings:

1. J.E. Freund. *Mathematical Statistics with Applications*, 7th edition, Pearson Prentice Hall, 2004.
2. Irwin Miller and M. Miller. *Probability and Statistics*, Prentice Hall, 2003.
3. F. Kenney and E. S. Keeping. *Mathematical Statistics: Part 1 & Part II*, Chapman and Hall, New York, 1954.

4. Hogg, R.G and A.T. Craig. *Introduction to Mathematical Statistics*, Pearson Education (Indian Edition), 2004.
5. V. K. Rohatgi and A. K.M. E Saleh. *An Introduction to Probability and Statistics*, 2nd Edition, Wiley, 2000.

Course No. UG/Eco-23: Mathematical Economics I

Total number of Lectures: 45+Tutorials+ problems

- 1. One variable calculus and its application in Economics(10 lectures)**
 - a) Definition of real number
 - b) Functions: Types, domain, limit, continuity, derivatives; Relative Maxima and Minima, Concavity, Convexity, Global Maxima and Minima; Horizontal Asymptotes; Graphing a Rational function; Chain rule; Inverse functions and their derivatives.
 - c) Application to Economics: Production function – Different types: Cost functions; Revenue functions; Profit; Demand functions and elasticity
- 2. Calculus of several variables Static Optimization and its application (23 lectures)**
 - a) Sequence of real numbers: definition, limit
 - b) Open Set; Closed Set; Compact Set
 - c) Functions of several variables with examples
 - d) Graphs of Function level curves: indifference curve, isoquants, implicit function
 - e) Quadratic forms and polynomials
 - f) Continuous functions
 - g) Partial derivatives, total derivatives, marginal Product, marginal utility—slope of a level curve
 - h) Higher order derivatives: Concavity and Convexity of functions; Quadratic forms and definiteness
 - i) Unconstrained optimization and its application: First and second order conditions; Global maxima and minima; Profit maximization of a firm; Monopoly—Price discriminating monopoly
 - j) Constraint Optimization Concepts: Properties of Feasible set, convex set, quasi concave functions, definition and derivative property, uniqueness of solutions
 - k) Optimization with single equality constraint: Lagrange Function, second order condition, application in consumer and production theory;
 - l) Optimization with several equality constraint: Second order condition, bordered hessian condition, application—work leisure choice
 - m) Meaning of Lagrange multiplier: Value Functions

- n) Optimization with inequality Constraint: Introduction to non-negativity constraints, complementary slackness conditions, shadow prices, Kuhn-Tucker Conditions, Arrow Enthoven sufficiency condition
- o) Envelope Theorem
- 3. Homogenous and Homothetic functions (2 lectures)**
- 4. Duality in consumer theory and production (10 lectures)**
Properties of expenditure function, indirect utility function, Shepherd's Lemma; Roy's Identity; Slutsky equation and decomposition of price effect; Properties of cost functions

References

1. Lawrence Blume and Carl Simon. *Mathematics for Economists*, W. W. Norton and Company, 1994.
2. Sydsaeter Knut and Peter J. Hammond. *Mathematics for Economic Analysis*, PHI, 1995
3. Alpha Chiang and Kevin Wainwright, *Fundamental Methods of Mathematical Economics*, Fourth Edition, McGraw-Hill, 2005.

Course No. UG/Eco-24: Mathematical Economics II

Total number of lectures : 45+Tutorials+ problems

- 1. Linear Programming Problem: (8 lectures)**
Basic concepts and solution methods; geometrical Solution and solution using simplex method; Duality theorem.
- 2. Simultaneous Equation Systems: algebraic and geometric exposition (9 lectures)**
Linear and non-linear simultaneous systems.
Application in Economics SKM, IS-LM Model
Leontief Input Output Model; Simple non-linear small open economy trade models
- 3. Eigen values and Eigen vectors—definition Characteristics equations its roots (4 lectures)**
- 4. Linear difference equation (12 lectures)**
 - a) First order non-homogenous linear difference equation: solution concepts, dynamic stability, Cobweb Model, market model with inventory, stability in S.K.M and ISLM model
 - b) Nonlinear difference equation time path and phase diagram
 - c) Second Order non-homogenous linear difference equation: solution concepts, Multiplier-Accelerator interaction models of Samuelson and Hicks and trade cycles, Inflation and unemployment model.
 - d) System of difference equations
- 5. Linear Differential Equations (12 lectures)**
 - a) First order linear differential equation: Solution concepts; Solow growth model

- b) Linear second order differential equation: Solution; Real and unreal roots of characteristic equation; existence of solution; Graphs; Phase diagram; A market model with price expectation; Inflation and unemployment interaction
- c) System of linear differential equations: Solution concepts; Eigen values; Steady state and stability; Phase diagram.
- d) Dynamics of national debt, dynamics of the IS-LM model
- e) Non-linear systems of differential equations: Equilibrium of an autonomous system; Lyapounov stability; The system of a linear approximation.

References

1. Lawrence Blume and Carl Simon. *Mathematics for Economists*, W. W. Norton and Company, 1994.
2. Sydsaeter Knut and Peter J. Hammond. *Mathematics for Economic Analysis*, PHI, 1995
3. Alpha Chiang and Kevin Wainwright, *Fundamental Methods of Mathematical Economics*, Fourth Edition, McGraw-Hill, 2005.
4. J.R.Hicks. *A Contribution to Theory of Trade Cycle*, Oxford University Press, New York, 1951.

SECOND YEAR SEMESTER III

Course No. UG/Eco-31: Microeconomic Theory II

Total Number of Lectures: 40+ Tutorials + Problems

1. Monopoly (16)

Origin of monopoly; Monopoly pricing and efficiency of equilibrium; Price discrimination; Upstream and downstream monopoly: vertical integration, transfer pricing; Durable goods monopoly: lease vs. sale, pricing over time; Tying: pure and mixed; Advertising; Anti-trust and regulation.

2. Monopolistic competition (4)

Chamberlianian competition; Sweezy and Kinked demand curve analysis; Dominant firm with a competitive fringe.

3. Oligopoly and Strategic Behaviour of Firms (16)

a) Non-cooperative static games – Solution concepts: iterated elimination of strictly dominated strategies; pure and mixed strategy Nash equilibrium.

b) Non-cooperative dynamic games of complete information – Games of perfect and imperfect information; Solution concepts: backward induction outcome, Sub-game Perfect Nash Equilibrium; Repeated games and Folk Theorem.

c) Oligopoly theories – Cournot and Bertrand models as games of quantity and price competition; Quantity and price leadership models; Repeated games and collusion.

d) Analysis of entry deterrence

4. Monopsony (4)

Suggested Readings:

1. Oz Shy. *Industrial Organization: Theory and Applications*, MIT Press, 1995.
3. Robert Pindyck and Daniel Rubinfeld. *Microeconomics*, Prentice Hall/Pearson, 2009.
4. Hal Varian. *Microeconomic Analysis*, W. W. Norton and Company, 2013.
5. Louis Cabral. *Introduction to Industrial Organization*, MIT Press, 2002.
6. Jean Tirole. *Theory of Industrial Organization*, MIT Press, 1988
7. C. Ferguson and J. Gould. *Microeconomics*, AITBS, 2000
8. Robert Gibbons. *A Primer in Game Theory*, Princeton University Press, 1992.
9. Martin Osborne. *Introduction to Game Theory*, Oxford University Press, 2003.
10. Prajit K. Dutta. *Strategies and Game: Theory and Practice*, MIT Press, 1999.
11. C. D. Aliprantis and S. K. Chakrabarti. *Games and Decision-Making*, Oxford University Press, 1998.
12. Erik Rasmusen. *Games and Information: An Introduction to Game Theory*, Basil Blackwell, 1999.
13. Massimo Motta. *Competition Policy: Theory and Practice*, Cambridge University Press, 2004.

Course No.UG/ECO-32: General Equilibrium and Welfare Economics**Total Number of Lectures: 40+ Tutorials+Problems****1. Introductory Analysis (6 Lectures)**

Partial Equilibrium vs. General Equilibrium techniques; Inter-relationship amongst markets; characteristics and assumptions of competitive General equilibrium; Walras' Law and its implications.

2. Exchange Economy, Consumption Allocation and Pareto Optimality

Exchange and competitive allocation of goods among individuals ; offer curve and stability of competitive allocation; concept of Pareto efficiency, contract curve and Pareto set; concept of Core (diagrammatic illustration) and Core allocation; Condition of Pareto optimality; Social indifference curves and their properties; Principle of compensation and Pareto Comparability'

3. A two sector production economy (12 Lectures)

Efficiency in resource allocation, Production Possibility Curve and its properties, concavity of PPF; Rybczynski and Stolper-Samuelson theorems in a two sector production economy- magnification effects and duality, price-output response ;General equilibrium with production and conditions of Pareto optimality.

4. Competitive General equilibrium (12 Lectures)

Existence, uniqueness and stability of competitive general equilibrium in multi-markets- notions of information, non-convexity and presence of externality. Tatonnement and Non-Tatonnement

adjustments. First and Second Fundamental Welfare Theorems, and welfare properties of competitive equilibrium, and exceptional cases.

5. Introduction to Social Welfare (10 Lectures)

Theory of Second Best and Optimal interventions to attain Pareto optimality . Social Welfare functions and Pareto criterion: Compensation tests according to Scitovsky, Hicks, Kaldor and Samuelson criteria – Gains from trade theorem, Basic Ideas of Arrow's Impossibility Theorem, Voting and Social choice. Introduction to market failure, and public goods.

Suggested Readings:

1. Mascollel, Whinston and Green. *Microeconomic Theory* (only graphical analysis and problems), Oxford University Press, 2012.
2. Anjan Mukherjee. *Walrasian and Non-Walrasian General Equilibrium*, OUP, 2002.
3. Hal Varian. *Microeconomic Analysis*, Third Edition, Selected chapters, W. W. Norton and Company, 2013.
4. Satya. R.Chakravarty. *Microeconomics*, Allied Publishers Pvt Ltd., 2002
5. J. Hindriks and G. Myles. *Intermediate Public Economics*, The MIT Press, Second Edition, 2013.

Course No.UG/ECO-33: Econometrics

Total Number of Lectures: 45 lectures + Tutorials + Problems

1. The two-variable linear regression model: least-squares estimators of the regression parameters, the properties of the estimators, testing of hypothesis. **(15 lectures)**
2. Introduction to two variable non-linear relationship. **(2 lectures)**
3. Violation of assumptions and simple least-squares methods in two variable linear regression models: autocorrelation, heteroscedasticity, test of autocorrelation and heteroscedasticity. **(8 lectures)**
4. K-variable model- multicollinearity problem, consequences and testing. **(6 lectures)**
5. Dummy variables, dummy variable for changes in intercept term, slope coefficient, dummy variable trap, dummy variables for testing in the regression coefficient. **(7 lectures)**
6. Introduction to Logit and Probit Models. **(5 lectures)**

Suggested Readings

1. G.S.Maddala. *Introduction to Econometrics*, John Wiley & Sons Ltd, 2009.
2. Jack Jhonston. *Econometric Methods*, 3rd Edition
3. Jan Kmenta. *Elements of Econometrics*, Macmillan Publishing Company, 1991.
4. D. Gujarati. *Basic Econometrics*, McGraw Hill Higher Education, 2003
5. William H. Green, *Econometric Analysis*, 7th Edition, Prentice Hall, 2011.

Course No.UG/ECO-34: Macroeconomics-I

Total Number of Lectures: 43 lectures + Tutorials + Problems

1. **National Income**; Definitions and accounting relations - three ways of measuring national income-savings-investment in closed and open economy
2. **Simple Keynesian System**; Multiplier for both autonomous expenditure and balanced budget, in both closed and open economy - paradox of thrift - equilibrium, stability and comparative statics
3. **IS-LM Model**; Equilibrium, stability and comparative-statics, especially effects of monetary and fiscal policies. IS-LM model in the open economy under fixed exchange rate without capital mobility. **(8 lectures)**
4. **Complete Keynesian System (17 lectures)**
 - Derivation of Aggregate Demand Curve assuming price-flexibility;
 - Derivation of Aggregate Supply Curve, both in the presence and absence of wage-rigidity;
 - Equilibrium. Stability and Comparative-statics, especially effects of monetary and fiscal policies;
 - Underemployment and its causes - possible solutions, including real balance effect, wage cut policy;
 - Inflation and Unemployment trade-off - short-run and long-run Phillips curve.
5. Kalecki – Cost, mark-up pricing and degree of monopoly.

Suggested Readings:

1. J. B. Hall and R. E. Taylor. *Macroeconomics*, W.W. Norton & Company; 5Rev Ed Edition, 1997.
2. R. Dornbusch and S. Fischer. *Macroeconomics*, 5th Edition, McGraw Hill Publishing Company, 1990.
3. N. G. Mankiw. *Macroeconomics*, Worth Publishers; 5th edition, 2002.
4. R. T. Froyen. *Macroeconomics-Theories and Policies*, Prentice Hall; 9th Edition, 2008.
5. W. H. Branson. *Macroeconomics*, Harper & Row INC USA, Indian Edition, 1995.
6. Andrew Abel and Ben Bernanke, *Macroeconomics*, Prentice Hall; 6th Edition, 2007.
7. M. Kalecki. *Selected Essays on the Dynamics of the Capitalist Economy, 1933–1970*, CUP, 1971.
8. M. Kalecki. *Selected Essays on the Economic Growth of the Socialist and the Mixed Economy*, CUP, 1972.

SECOND YEAR SEMESTER IV

Course No.UG/ECO-41: International Trade I

Total Number of Lectures: 45 lectures + Tutorials + Problems

1. Basis of Trade (5)

Arbitrage and inter-industry trade; Absolute and comparative advantages; Different sources of comparative advantage; Regulation of externalities; Perverse comparative advantage; Basis of intra-industry trade.

2. Gains from Trade (GFT) (5)

GFT theorem. Equilibrium in an open economy and gains from trade (in terms of production possibility curve and community indifference curve): Convexity and tangency conditions (market structure & technology): GFT in commodity-endowment model and in factor-endowment model

3. International equilibrium (4)

Offer curves: derivation; properties, related elasticities; Equilibrium TOT and welfare property in terms of trade-indifference curves; Walrasian static stability and Marshall-Lerner condition.

4. Neoclassical Trade Models (14)

(a) Technology & Trade: Ricardian model (4)

(Role of demand; double-factoral ToT; many-country model)

(b) Factor endowment & trade:

Heckscher-Ohlin Samuelson model (10) (Condition for incomplete specialization; Rybczynski effect and HO theorem under physical definition; demand-bias and Leontief paradox; linear homogeneity and the one-to one correspondence; Stolper-Samuelson effect in 2x2 case and HoS theorem under price definition; FPE theorem and sources of its disruption: Non- traded good. Factor immobility, factor intensity reversal. Complete specialization, Immiserizing growth.)

5. Theory of Trade Restriction: (10)

(a) Price interventions (tariff and export subsidies): dead-weight losses of tariff under partial equilibrium; General equilibrium analysis of tariff: TOT effect and Lerner Case; welfare effect and optimum tariff; tariff retaliation; tariff and protection (infant industry argument; effective rate of protection in a small economy; domestic price effect and Metzler Paradox in a large country); TOT deterioration and welfare loss under export subsidy; Lerner's Symmetry.

(b) Quantitative Restrictions (Import quota and VER): Scarcity rent and dead-weight losses, TOT effect and welfare under import quota; price equivalence between tariff and import-quota; effects of VER in the exporting country; equivalence of economic effects under import quota and VER for the importing country.

6. Domestic Monopoly and Trade Policy (4)

Gains from trade in presence of domestic monopoly; non-equivalence of tariff and import quota; international price discrimination and dumping under trade protection.

7. Introduction to Trade and Growth (3)

Trade and growth linkage in HOS model; import-biased versus export-biased growth; export-led growth, TOT and welfare (Bhagwati's immiserizing growth hypothesis)

Suggested Readings:

1. R. E. Caves, J. A. Frankel and R. W. Jones. *World Trade and Payments: An Introduction*, Pearson Education, 2007.
2. J. Bhagwati, A. Panagariya and T.N. Srinivasan, *Lectures on International Trade*, MIT Press, 1998.
3. P. Krugman and M. Obstfeld. *International Economics; Theory and Policy*, Pearson Education, 6th Edition, 2004.
4. R. Acharyya, *International Economics: An Introduction to Theory and Policy*, Oxford University Press, Delhi, 2014.

Course No.UG/ECO-42: Macroeconomics II

Total Number of Lectures: 42 lectures + Tutorials + Problems

1. Full Employment Classical Model (4 Lectures)

- Equilibrium and comparative statics;
- Friedman's Quantity Theory - Say's Law and Quantity Theory - Comparison between Keynesian and Classical System

2. Patinkin's Rehabilitation of the Classical System (4 Lectures)

- The basic model of disequilibrium. Neutrality of money with inside and outside money

3. Neo-classical Macroeconomics (4 lectures)

- Isolated barter economy and inter-temporal choice
- Basic Market-clearing Model

4. Consumption Function (5 lectures)

- Inter-temporal consumption choice (including inter-temporal Walras Law), Friedman's Permanent Income Hypothesis, Duesenberry's Relative Income Hypothesis and Ando-Modigliani's Life-cycle hypothesis.

5. Investment Function (5 lectures)

- MEC and MEI
- Jorgenson's neo-classical theory
- Acceleration principle- fixed and variable, comparison with Jorgenson

6. Demand for Money (4 lectures)

- Regressive expectations and Tobin's Portfolio Choice models, Baumol's inventory theoretic money demand

7. Money multiplier analysis and monetary policy (8 lectures)

- High powered money, Money multiplier analysis
- Monetary policy- OMO, Bank rate, variable reserve ratio, repo and reverse repo

8. Economic Growth (5 lectures)

- One sector models of Harrod, Domar, Solow - Equilibrium and Stability (without technological change) , Cambridge models of growth – Kaldor and Pasinetti.

Suggested Readings:

1. D. Patinkin. *Money, Interest and Prices: An Integration of Monetary and Value Theory*, 2nd Edition, Abridged, The MIT Press; 2nd Edition, 1989.
2. R. Barro. *Macroeconomics*, The MIT Press; 5th Edition (1997)

3. W. H. Branson. *Macroeconomics*, Harper and Row, 3rd Edition, 1989.
4. A.K. Sen (ed). *Growth Economics*, Penguin, 1970.
5. Andrew Abel and Ben Bernanke. *Macroeconomics*, Prentice Hall; 6th Edition, 2007.
6. J. B. Hall and R. E. Taylor. *Macroeconomics*, W.W. Norton & Company; 5th Edition, 1997.
7. Errol D'Souza. *Macroeconomics*, Pearson Education (New Delhi), 2009.

Course No: UG/ECO-43: Applied economics

Total Number of Lectures: 45 lectures + Tutorials + Problems

This course will be different from other courses as it visualises a fully computer lab based teaching course. This course also provides a basic idea of how problem can be formulated, how to take up a research project and also the steps that need to follow in any primary data based research study. This course is so sequenced that students will be able to apply the knowledge on Statistical and Econometric methods that they have already gathered in their earlier semesters. This course design aims at providing students with necessary skill to handle Statistical and Econometric packages using data sets and computer facilities of the Computer Laboratory of the Department. The students are expected to acquire enough competence in handling application of computer packages so that they can use that knowledge in their group research Project Work in semester 6.

A. Essential Steps in Primary Data Collection (12 Lectures)

Problem selection, Testing of hypothesis and Inference, sample design, designing of questionnaire pre-testing of questionnaire for collection of primary data, introduction to secondary data sources.

B. Application of Statistics (14 Lectures)

Estimation of descriptive statistics: mean, median, mode, measures of dispersion, skewness and kurtosis, simple correlation; rank correlation. Graphical representation of data sets: pie chart, bar chart, linear and nonlinear curve fitting; Introduction to probability theory, random sampling using random number table, ANOVA based Tests.

C. Application of Econometrics (19 Lectures)

Linear regression model and test for linear restriction on parameters test of heteroscedasticity, autocorrelation, multicollinearity, application of dummy variable models; Simple models with limited dependent variable; Examples from economic behaviours.

Suggested Readings:

1. G. Maddala. *Introduction to Econometrics*, Willey, 2002.
2. G. Hadley. *Linear Programming*, Addison-Wesley Pub Co., 1962.
3. W. G. Cochran. *Sampling Techniques*, Wiley; 3rd Edition, 1977.
4. J.W. Wooldridge. *Introduction to Econometrics*, South-Western Division of Thomson Learning; International Ed edition, 2005.
5. J. F. Kenney and E. S. Keeping. *Mathematics of Statistics*, Part I & II, D. Van Nostrand Company Inc; 2nd Edition, 1951.

6. F. E. Croxton, D. J. Cowden and S. Klien. *Applied General Statistics*, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1967.

Course No.UG/ECO-44: Development Economics

Total Number of Lectures: 44 lectures + Tutorials + Problems

1. Development and underdevelopment:

1.1 Colonial Pattern of trade and De-industrialisation- division of world between centre and periphery; export enclaves **(4 lectures)**

1.2 Underdevelopment as a low level equilibrium in a multiple equilibrium situation –low level equilibrium trap (arguments offered by Nurkse, Rosenstein-Rodan and formalized by Murphy. Shleifer & Vishny) **(4 lectures)**

2. Marco characteristics of underdeveloped economics:

2.1 Dual economics structure, open and disguised unemployment and migration: Lewis Model-extension; Ranis-Fei-Harris-Todaro model of rural-urban migration and their critiques. **(5 lectures)**

2.2 Informational Asymmetries and market failure: credit market, land market, labour market-consequent existence of interlinkage. **(10 lectures)**

2.3 Poverty: Conceptual Issues-Measurement –Functional Effects **(5 lectures)**

2.4 Inequality: Conceptual Issue and Measurement Issues (Kuznets' inverted-U hypothesis: testing and explanation, inequality as a constraint to growth-basics of Galore-Zeira model. **(5 lectures)**

2.5 Issues involved in measurement: conceptual issues about the relationship between growth and development-Human development index, its alternative forms and critique. **(5 lectures)**

3. Strategies of Development:

Stages of Economic growth: Rostow-Vicious circle of poverty and the critical minimum effort hypothesis; Big push argument targeting the big push-balanced vs. unbalanced growth; Choice of technique and investment criteria. **(6 lectures)**

Suggested Readings:

1. Kaushik Basu. *Analytical Development Economics: The Less Developed Economy Revisited*, OUP, 2000.
2. A. P. Thirlwal, *Growth and Development*, 5th Edition, MacMillan Press Ltd, 1994.
3. W.Arthur Lewis. *Economic Development with Unlimited supply of Labour* in A. N. Agarwal and S. P. Singh (ed.) *Economics of Underdevelopment*. Oxford University Press, 1986.
4. Debraj Roy. *Development Economics*, Oxford University Press, 1999.
5. M.P Todaro. *Economic Development in the Third World*, London: Longman, 1981.
6. World Bank. *World Development Report*, Selected Years.
7. A.K Bagchi. *The Political Economy of Underdevelopment*, Cambridge University Press, 1982.

THIRD YEAR SEMESTER V

Course No.UG/ECO-51: Public Economics

Total Number of Lectures: 42 lectures + Tutorials + Problems

1. **Introduction to Public Economics (2 Lectures)**
2. **Externalities:** Public-Sector Remedies for Externalities, Distinctions between price and quantity approaches to addressing externalities. **(3 Lectures)**
3. **Pure Public Good** - public goods and its optimal provision along with Private Provision of Public Goods , Public Provision of Public Goods , Voluntary Private Provision of Public Goods, Voting equilibrium (Majority Rule- Condorcet Winner, Median voter theorems, Multidimensional Voting), mechanisms for demand revelation. **(12 Lectures)**
4. **Impure Public Goods** (Club good and local public goods): Overview of club good, single product club (Fixed utilization, variable utilization, two part tariff), overview of local public good. **(6 Lectures)**
5. **Principles of taxation:** Ability to pay principle versus Benefit Principle. **(2 Lectures)**
6. **Commodity Taxation:** Deadweight Loss (revision), Optimal taxation (overview), Tax Rules (The inverse elasticity rules, The Ramsey Rule), Applications (the marginal Tax reform, Optimality), Efficient Taxation. **(7 Lectures)**
7. **Taxation and Work effort, the Laffer curve, Taxation of Savings. (7 Lectures)**
8. **Central and State Government Composition of Expenditure, Revenue, Fiscal Federalism in India. (3 Lectures)**

Suggested Readings:

1. A. B. Atkinson and J. E. Stiglitz. *Lectures on Public Economics*, McGraw-Hill Inc.,US, 1980.
2. C. V. Brown and P. M. Jackson. *Public Sector Economics*, Wiley-Blackwell; 4th Edition, 1991.
3. J. F. Due and A. F. Friedlander. *Government Finance-Economics of Public Sector*, AITBS Publishers and Distributors, 1994
4. J. Hindriks and G. D. Myles. *Intermediate Public Economics*, The MIT Press; Annotated Edition, 2006.

5. Indian Public Finance Statistics, Ministry of Finance Department of Economic Affairs, Economic Division, Government of India.
[<http://finmin.nic.in/reports/ipfstat.asp>]
6. State Finances: A Study of Budgets, Reserve Bank of India
[<https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/00SFLF53D1E4239044DCA9F79D47327947CFC.PDF>]
7. Jonathan Gruber. *Public Finance and Public Policy*, Worth Publishers, 2011
8. R. A. Musgrave. *The Theory of Public Finance*, McGraw-Hill Inc.,US, 1959.
9. J. E. Stiglitz. *Economics of Public Sector*, W. W Norton and Company, 3rd Edition, 2000.

Course No.UG/ECO-52: Capitalist, Socialist and Mixed Economic Systems

Total Number of Lectures: 43 lectures + Tutorials + Problems

1. The Contending Schools of Thought and the Recent Performance of Capitalist Economies: Japan, Europe and USA
Economic Performance of Japan since the Second World War in both the pre-crisis (late eighties) and post-crisis periods: Explanation, and Assessment of the Major Schools of Economic Thought
Recent Performance of US and Europe and the Global Financial Crisis: Explanation, and Assessment of the Major Schools of Economic Thought
2. The Contending Schools of Thought and the Recent Performance of Emerging Market Economies: India and China
Economic Performance of India in the Post-Independence Period in both the Pre and Post Crisis (1990-91) periods: Explanation, and Assessment of the Major Schools of Economic Thought
Recent economic Performance of China and its Current Crisis: Explanation, and Assessment of the Major Schools of Economic Thought
3. The Contending Schools of Thought and the Performance of USSR in the Post-Revolution Period
Performance of USSR since October Revolution and its Collapse in 1990: Explanation, and Assessment of the Major Schools of Economic Thought
4. Global Financial Capital and Capitalism: An Assessment

References:

1. David Faith. *The Japanese Economy*, Oxford University Press, 2005

2. Bai Gao. *Japan's Economic Dilemma*, Cambridge University Press, 2001
3. Richard Koo. *The Holy Grail of Macroeconomics: Lesson from Japan's Great Recession*, Wiley, 2009
4. Paul Krugman. *Depression Economics Returns*, W. W. Norton and Company, 2008.
5. Barry Eichengreen. *The European Economy since 1945: Coordinated Capitalism and Beyond*, Princeton University Press, 2007.
6. Phillip Lane. *The European Sovereign Debt Crisis*, Journal of Economic Perspectives, 2012.
7. Leszek Balcerowicz, Andrej Rzonca, Lech Kalina and Aleksander Laszek. *Economic Growth in the European Union*, Lisbon Economic Council, 2013.
8. Frederic Mishkin. *Over the Cliff: From the Subprime to the Global Financial Crisis*, Journal of Economic Perspectives, Volume 25, Number 1, Winter 2011, Pages 49–70 .
9. Alan S. Blinder and Mark Zandi. *How the Great Recession was Brought to an End*, 7 July (memeo), 2010.
10. Alan S. Blinder and Mark Zandi. *The Financial Crisis: Lessons for the Next One*, Centre on Budget and Policy Priorities, October 15, 2015.
11. Joseph Stiglitz. *The Price of Inequality: How Today's Divided Society Endangers Our Future*, W.W. Norton and Company, New York, 2013.
12. Joseph Stiglitz. *Freefall: America, Free Market and the Sinking of the World Economy*, W.W. Norton and Company, January 19, 2010.
13. Joseph E. Stiglitz. *Whither Socialism?*, The MIT Press, 1994
14. Paul Krugman. *End this Depression Now*, 30 April 2012, W.W.Norton and Company, New York
15. Paul Krugman. *The Conscience of a Liberal: Reclaiming America from the Right*, Penguin Books, New York, 2009.
16. Thomas Piketty. *Capital in the Twenty-First Century*, Belknap Press of Harvard University Press, 2014
17. C. Ghosh, and A. Ghosh. *Open Economy Macroeconomics and Indian Economy*, PHI Learning (Forthcoming).
18. Maurice Dobb, *Soviet Economic Development since 1917*, Third Edition, Routledge and Kegan Paul Limited, 2005.
19. Mark Sandle, *Soviet Socialism*, UCL Press Limited, London, 1999
20. Hanson Phillip. *The Rise and Fall of the Soviet Economy*, Routledge, London, 2003.
21. Pravda Alex. *The Collapse of the Soviet Union in 1990-91* in M. P. Leffler and O. A. Westad Ed. *The Cambridge History of the Cold War: Findings*, Vol. 3, Cambridge University Press, 2010.
22. *A Study of the Soviet Economy*, The IMF, 1991.

Course No.UG/ECO-53: International Trade II: Theory of Balance of Payments and Exchange Rate

Total Number of Lectures: 43 lectures + Tutorials + Problems

1. Balance of Payments: Concepts and Accounting

- (i) Current Account (balance of visible and invisible trade) and Capital Account (balance of short-term and long-term asset transactions); Concept of balance of payments equilibrium: *ex ante* and *ex post* – concepts of accommodating and autonomous transactions and movements of monetary instruments.
- (ii) National Income Accounting in an Open Economy: Relationship between current account surplus and the rate at which the economy is adding to its net external assets and the accounting relationship of deficit in current account with savings-investment gap and government budget deficit or surplus.

2. Exchange Rate: Concepts

Price Quotation System (PQS) and Value Quotation System (VQS) definition of bilateral nominal and real exchange rate . Extension to multilateral trade-concepts of nominal and real effective exchange rate index (NEER and REER). Concept of Purchasing Power Parity (PPP), exchange rate and its use for international comparison of macro variables.

3. Foreign Exchange Market

Concepts of spot market –demand for foreign exchange and supply of foreign exchange and their connection with debit entry and credit entry of balance of payment. Spot market exchange rate determination: partial equilibrium approach-Marshall Lerner condition- J-curve.

Concept of forward market; concepts of ‘open’, ‘short’, ‘long’ positions and ‘hedging’ and the usefulness of forward market. Hedging and Covered Interest Arbitrage Forward Exchange Rate-neutrality condition for international money flow.

4. Open economy Macroeconomics

Open economy simple (abstraction from monetary complication and international asset transactions) fix-price model of a small country with exogenous export demand and endogenous import demand-export multiplier –extension of this model for a large country-interaction of the income expenditure process of home country with that of the rest of the world-foreign repercussion. Introduction of various degrees of capital flows under fixed and flexible exchange rate systems and examination of the effectiveness of fiscal and monetary policies-Dutch disease, sterilization and stagflation- Alexander’s critique and macroeconomic absorption. Flex Price Model: Laursen-Metzler Synthesis of

Elasticity Approach and Absorption Approach. Conflict between internal and external balance (Swan diagram)

5. International Money

Concept of international money and liquidity under various monetary systems- ancient and modern gold and silver standard –gold and silver parity- partial endogeneity of money supply in an ‘outside’ money economy. Bretton Woods system-gold parity of dollar and dollar parity of other currencies-introduction of SDR as accounting money and medium of exchange for government to government transactions-emergence of dollar as international reserve currency and the currency of intervention – Triffin Dilemma and the problem of Seigniorage-breakdown of Bretton Woods system. Emergence of crypto currency-Bitcoin as medium of private international transaction vis-a-vis SDR.

6. India’s BOP and Exchange Rate Policy

- (a) India’s current account and capital account scenario (including FOREX reserves) since the 1950s with special reference to the changes in the mid-1970s (marked by the rise of OPEC) and the mid-1980s (the start of liberalisation), the 1991 crisis and current developments.
- (b) Current scenario of managed float and market determined exchange rate (flexible exchange rate regime) of India and other countries (including LERMS, Target zone etc.)

Suggested Readings:

1. R. E. Caves, J. A. Frankel and R. W. Jones. *World Trade and Payments: An Introduction*, Pearson Education, 2007.
2. Rudiger Dornbusch. *Open Economy Macroeconomics*, Basic Books, 1980.
3. P. Krugman and M. Obstfeld. *International Economics; Theory and Policy*, Pearson Education, 6th Edition, 2004.
4. Giancarlo Gandolfo. *International Economics*, Springer Link, 2004.
5. Francisco L. Rivera-Batiz and Luis A. Rivera-Batiz, *International Finance and Open Economy Macroeconomics*, 2nd Edition, 1994.

THIRD YEAR SEMESTER VI

Course No.UG/ECO-61: Resource and Environmental Economics

Total Number of Lectures: 42 lectures + Tutorials + Problems

1. Introductory Lectures (3)

The Environment-economy Interaction, Elements of Ecology – Ecosystem Cycles; general issues regarding environmental problems.

Reference: N. Hanley, J. Shogren and B. White. *Introduction to Environmental Economics*, CUP (1999), Ch 1

2. Economics of Natural Resources (10)

Renewable resources (growth curve and rate of exploitation) and Non-renewable resources (optimal extraction rule); Natural Capital, Indicators of sustainable development, Green accounting, UN system of satellite accounting beyond System of National Accounts.

Reference: N. Hanley, J. Shogren and B. White. *Introduction to Environmental Economics*, CUP (1999), Ch. 8, 9, 10, 14

3. The Case of Market Failure Applied to Environmental and Resource Economics (21)

Reference: T. W. Pearce and R. K. Turner. *Economics of Natural Resources and the Environment*, 1990, Chapters 4, 5, 6, 7 & 8

4. Introduction to non-market Valuation (8)

The meaning of Environmental Valuation, The uses of Economic Value, Costs, Benefits, Willingness to Pay and willingness to Accept, Total Economic Value, option Value, existence Value, Empirical measures of option and Existence Value, Description of Valuation Methodologies: revealed preference versus stated preference, Hedonic prices, travel cost method, contingent valuation .

Reference: T. W. Pearce and R. K. Turner. *Economics of Natural Resources and the Environment*, 1990, chapters 9, 10

Suggested Readings:

1. Allen. V. Kneese. *Natural Resource Economics: Selected Papers of Allen V. Kneese (New Horizons in Environmental Economics)*, Chapter 1, Edward Elgar Publishing, 1995.
2. C.Kolstad. *Environmental Economics*, OUP, 2000.
3. Bhattacharya R (ed), *Economics of the Environment: An Indian Perspective*, OUP, 2000.
4. Sengupta R., *Ecology and Economics: An Approach to Sustainable Development*, OUP, 2001.
5. N. Hanley, J. Shogren and B. White. *Introduction to Environmental Economics*, CUP, 1999.
6. G. Hardin. *The Tragedy of the Commons*, Reprinted In: U. Sankar, ed. *Environmental Economics*, OUP, 2001.
7. R. S. Pindyck and D. L. Rubinfeld, *Microeconomics*, Chapter 18, Prentice Hall; 7th Edition, 2008.
8. Roger Perman, Yue Ma, Michael Common, David Maddison, James McGilvray

Natural Resource and Environmental Economics, 4th Edition, Addison Wesley, 2011.

Course No.UG/ECO-62: Financial Economics

Total Number of Lectures: 42 lectures + Tutorials + Problems

1. **Evolution of limited liability companies**; alternative sources of fund for. firm; debt and equity instruments of various types-a very brief discussion of advantages and disadvantages associated with each type of instrument due to asymmetric information and agency problems -Concepts of primary market and secondary market. With examples from Indian (6).
2. **Time value of money**
 - a. Time value of money and opportunity cost of capital
 - b. Future Value of a cash flow : concepts of compounding
 - c. Present value of a cash flow: concepts of discounting
 - d. Valuing different types of cash flows
 - e. Valuing level cash flows: different types of annuities & perpetuities
 - f. Real versus nominal interest rate: Fisher's equation
 - g. Introduction to risk.
3. **Alternative decision-making rules for investment decision**
 - a. Net present value rule
 - b. Internal rate of return rule & its pitfalls
 - c. Payback period
4. **Bond valuation**
 - a. Different types of interest rates: Call money rates, treasury bills rates, repo & reverse repo rates, bank rates
 - b. Different types of bonds and their valuation techniques
 - c. Bond ratings & rating agencies
 - d. Concept of yield to maturity
 - e. Measurement of volatility and duration
 - f. Term structure of interest rate & determinants of term structure of interest rates
5. **Financial statement analysis**
 - a. Analysis of balance sheet
 - b. Analysis of income statement
 - c. Analysis of Cash flow statement
 - d. Ratio analysis & its applications (12)
6. **Valuation of stocks**
 - a. Dividend discount model
 - b. Free cash flow model
 - c. Growth stocks & income stocks
7. **Financial derivatives**
 - a. Forward contract,
 - b. Futures contract,
 - c. options and
 - d. Swaps

e. Functioning of derivative markets (6)

References:

1. R. A. Brealey and S.C. Myers. *Principles of Corporate Finance*, Mc Graw Hill, 2007.
 2. W.A. Ross, R. W. Westerfield and B. D. Jordan. *Fundamentals of Corporate Finance*, Mc Graw Hill Education, 2012.
 3. M. G. Kohn. *Financial Markets and Institutions*, OUP, 2004.
 4. S. Kevin. *Portfolio Management*, PHI Learning Pvt. Ltd., 2006
 5. John. C. Hull. *Fundamentals of Futures and Options Market*, 9th Edition, Pearson, 2016.
 6. P.Chandra. *Financial Management Theory and Practice*, Mc Graw Hill Education, 2011.
 7. Bharati.V. Pathak. *The Indian Financial System: Markets, Institutions and Services*, Pearson, 2010.
 8. J. Berk, P. DeMarzo and J. Harford. *Fundamentals of Corporate Finance*, Pearson, 2014
 9. R. Parrino, D. S. Kidwell and T. Bates. *Fundamentals of Corporate Finance*, Wiley, 2014.
 10. Donald J. Smith. *Bond Math: The Theory behind the Formulas*, Wiley, 2011.
- This will be supplemented by papers and reports mainly from RBI website

Course No.UG/ECO-63: Indian Economic Development

Total Number of Lectures: 53 lectures + Tutorials + Problems

1. **Revolt (1857 -8), the modern state, and Colonized Issues in India(1848-1885):** Social and Economic Consequences of Colonial Rule in India, Colonial Constraints (1885- 1919) with emphasis on Naoroji's Drain Theory, Foreign Trade and Balance of Payments (1757– 1947), The Fiscal System (4)
2. **India's demographic features:** comparison between pre-independence and post – independence periods: demographic indicators as indicators of social development – inter-state perspectives; Demographic Dividend (3)
3. **India's Plan Models:** Achievements and Failures of Planning in India, Domestic and External factors causing Economic Reforms in India in 1991, Two and a half decades of Fund-Bank directed Economic Reforms in India: Rationale, Strategy and its impact on the Economy. (4)
4. **National Income:** Concept – Methods of measurement of National income in Indian economy – Trends in National Income & per capita income – trend in structural composition of national income; Trends in occupational structure; Trends in Saving and Investment in Indian economy. (4)
5. **India's Agrarian Economy:** History of the British period – salient features: land-use pattern an ownership distribution; growth fluctuations, trends and regional spread of Indian agriculture. Issues of Land Reform, Rural Credit and Role of NABARD, Performance of Agricultural Credit and Microfinance Programme, Green Revolution—Achievements and Drawbacks, Agricultural

Price Policy, Food Security and Food Sovereignty, Liberalization of agricultural trade and WTO's Agreement on Agriculture, Impact of Reforms on agriculture (8)

6. Basic Problems of India's Industrialization under Colonial Rule: Gandhi's 'Substance of Independence' and the Articulation of National Economic Interests, Nehru's Economic Philosophy, Industrial Stagnation since mid-1960s and late 1990s, Industry: Growth, fluctuations and regional spread; The Political Context of the Great Drought 1965-67, structure of Indian industries – small, medium and large. Historical Evolution of Industrial policy and its change over time; foreign collaboration, efficiency and productivity, Public vs. Private sectors. Rise of the SEZs and environmental Issues, The *Charkravyuha Challenge of the Indian Economy*, Impact of Economic reforms on Indian Industry (8).

7. Employment and Unemployment: Different concepts; unemployment problem and ways to tackle it; the link between unemployment and poverty; employment generation schemes and poverty alleviation schemes and their evaluations. Labour Laws and labour markets, Impact of reforms (8)

8. Social Sector in India: Educational and health attainments, including gender dimension – different indicators; inter-state variations; government initiatives and their evaluation. India's Social Transformation during the reform Period (4)

9. Financial markets: (6)

- a. Money market or market for short term funds- Call money market, Commercial bills market, market for Commercial Papers and Commercial Deposits, Treasury bills markets, Repo and reverse repo markets.
- b. Capital markets or markets for long term funds-Debt market, equity market, market for government securities.
- c. Stock market- characteristics –stock index –Indian stock market and role of SEBI

10. Financial Institutions: (4)

- a. Necessity of Financial Intermediaries and their functions
- b. A basic introduction to theories of banking-Structure of banking sector in India
- c. Non-bank financial institutions: venture capital funds, development banks, mutual funds, Insurance companies, with examples from India.

Suggested Readings:

1. Dharma Kumar and Meghnad Desai (eds.), *The Cambridge Economic History of India*, Volume 2: c.1751–c.1970, Cambridge University Press, Cambridge, 1983
2. Amiya Bagchi (ed). *Colonialism and Indian Economy*, Oxford University Press, 2010.
3. Tirthankar Roy. *The Economic History of India, 1857-1947*, Oxford University Press, 2006.
4. Barbara D.Metcalf and Thomas R. Metcalf. *A Concise History of Modern India*, Cambridge University Press, 2006.

5. Dietmar Rothermund. *An Economic History of India*, Croom Helm Ltd., New South Wales, 1988.
6. B.R.Tomlinson. *The Economy of Modern India, 1860-1970*, Cambridge University Press, Cambridge, 1996.
7. N.N. Vohra and S. Bhattacharya. *Looking Back: India in the 20th Century*, National Book Trust, 2009
8. S. Sivasubramonian. *The National Income of India in the Twentieth Century*, OUP, Delhi, 2000.
9. Sukhomoy Chakravorty. *Development Planning: The Indian Experience*, OUP, 1987.
10. Ruddar Dutt, and KP.M. Sundaram. *71st edition – Indian Economy*, S. Chand & Co, New Delhi, 2015
11. Economic and Political Weekly, Various Issues.
12. Govt. of India – Economic Survey, Various Years.
13. Kaushik Basu (ed). *Agrarian Questions*, OUP, 1994.
14. AmbarNath Ghosh and Asim K. Karmakar (Eds). *Agriculture, Sustainable Development and Microfinance*, Regal Publications, New Delhi, 2015
15. Biswajit Chatterjee and Asim K. Karmakar (Eds). *Rural Livelihoods in India*, Concept Publishing Company, New Delhi, 2015
16. .Biswajit Chatterjee and Asim K. Karmakar (Eds). *Food Security in India*, Regal Publications, New Delhi, 2012.
17. Asim .k .Karmakar et al (eds). *Two Decades of Economic Reforms in India*, Regal Publications , New Delhi, 2014.
18. Asim K. Karmakar. *Two and a Half Decades of Reforms: The Indian Economy. How Far? How Fast?* (Forthcoming).
19. M. G. Kohn. *Financial Markets and Institutions*, OUP, 2004.
20. L. M. Bhole. *Financial Institutions and Markets- Structure, Growth and Innovations*, Mc. Graw Hill Education, 2009.

. Course No.UG/ECO-64: Project

This Course aims to be a sequel of the Applied Economics Course in Semester IV. The course is aimed at providing students the scope to learn the art of team work, develop the skill of taking up independent analytical work/research project where they can learn how to select a real life problem, transform the problem into a research question and to apply an analytical framework based on theories learnt and use quantitative tools and problem designing skill learnt until Semester IV. The preparation of the project and initiation of surveys start in semester V and continues in semester VI. The students are supposed to come up with a conclusive answer to the research question. Finally a report will have to be submitted by the team. Essential components are: they must apply computer packages and handle a data set. This exercise is expected to enhance analytical skill of the students.

Teams will be formed amongst the students of a size of at least 4 and maximum of 5 members at the beginning of Semester V.

Syllabus for Compulsory UG Mathematics (ED) Course for Economics (Honours) Students

ED 1.1: Mathematics I

(50 Marks) To be offered in First Year Semester II

(40 Lectures)

1. Set Theory and Algebra: (25 Marks)

(a) Set Theory : Sets and set operations, Cartesian product of sets, Relations, Equivalence relations, partial order relations, functions, one-to-one and onto functions, bijective functions, Cardinality of sets, Composite functions, Inverse functions and Binary operations.

Natural Numbers, Integers, Rational and Irrational Numbers Set of Real Numbers; Absolute value and Intervals.

(b) Algebraic Structures: Group, Ring, Field – Basic concepts and Examples and some results; $(\mathbb{R}, +, \cdot)$ forms an ordered field. **(18 lectures)**

2. Real Sequence and Single Variable Calculus : (25 Marks)

(a) Sequence: Real sequences, Limit of a sequence, Monotonic sequences, Cauchy sequences.

(b) Calculus: Limit, Continuity and Differentiability of single variable functions, Rolle's Theorem, Mean Value Theorems, Taylor's Theorem, Maclaurine's Theorem, Expansion of functions. Indeterminate forms and La'Hôpital's Rule.

(c) Directional derivative, Partial derivative, Total derivative, Euler's theorem on homogeneous functions. **(22 lectures)**

ED 2.1 Mathematics II

(50 Marks) To be offered in Second Year Semester III

(40 Lectures)

1. Matrix and Determinants : (25 Marks)

Matrices, Algebra of Matrices, Different types of matrices, Determinants, Inverse of a square matrix, Elementary row operations, Rank of a matrix, Cramer's rule, Solution of system of linear equations by matrix inversion method, Characteristic equation, Eigen values and eigenvectors, Cayley Hamilton Theorem and its applications. **(20 lectures)**

2. Integral Calculus: Partition, Upper and Lower integrals of bounded functions, Definitions and some properties of Riemann integral **(5 lectures)**

3. Differential Equations and First Degree Difference Equations: (25 Marks)

Definition and Examples, Linear First Order Equations and integrating factors, Second Order Equations, Fundamental Existence and Uniqueness Theorem, Geometric Interpretation, Linear differential equations with constants Coefficients.

Difference Equations – First and Second Order, First and Second Order Simultaneous Equations, solutions and Concepts. **(15 lectures)**

Suggested Readings :

1. T. S. Blyth and E. F. Robertson. *Basic Linear Algebra*. Springer, 2002
2. R. Courant and F. Jonh. *Introduction to Calculus and Analysis*, (Vol. I & Vol. II), Springer, 1998.
3. D. V. Widder. *Advanced Calculus*, Prentice Hall, 1947.
4. R. G. Bartle, D. R. Sherbert. *Introduction to Real Analysis*. John Wiley, New York, 2011

5. M. D. Raisinghania. *Ordinary and Partial Differential Equations*. S Chand & Co Ltd., 2005.
 6. S. L. Ross. *Differential Equations*, Wiley, 1984.
 7. S. A. Mollah. *Numerical Analysis*, Books and Allied Publishers, 2013.
 8. S. K. Mapa. *Introduction to Real Analysis*, Sarat Book House, 2013.
 9. S. K. Mapa. *Higher Algebra (Abstract and Linear)*, Sarat Book House, 2011.
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Postgraduate Programme: MA in Economics Revised Syllabus 2016

- **Course Structure**

Core Papers 400 marks (Semesters I and II)

Optional papers (Group I and II) 400 marks (Semester III and IV)

Comprehensive 50 marks (Semester IV)

- Each paper will be covered in 40-45 lecture periods (including continuous evaluation/internal assessment) of 50 minutes duration each; Three (3) classes per week for each of the papers
- **Optional Papers:** Two Groups of Optional Papers will be offered, one group each in Semesters III and IV. Some new optional papers have been added for the PG IV Semester. At the beginning of Semester III, the department will announce which of the optional papers in each group will be offered in Semesters III and IV. The students are required to choose four (4) papers from these announced papers in each group, and each student must submit his/her choice in writing to the HOD. The department may limit maximum number of students enrolled in any particular optional paper that is being offered, and such limit, if any, will be announced at the end of Semester II. An optional paper will be offered only if at least one student opts for that paper.
- **Comprehensive** – It is expected that at the end of the Masters programme the students have acquired comprehensive knowledge in core papers that are being taught in Semesters I and II, without which a student should not be eligible to get the Masters Degree. Thus, this paper will not be a taught paper, rather a self-study paper. A written examination for 50 marks will be held along with the end-semester examinations for other papers in Semester IV. The paper will cover Microeconomic Theory, Macroeconomic Theory and Compulsory Econometrics.

Sequencing of Courses

Semester	Course name			
I	Microeconomics I PG/Eco-11	Macroeconomics I PG/Eco-12	Mathematical Economics PG/Eco-13	Econometrics I PG/Eco-14
II	Microeconomics II PG/Eco-21	Macroeconomics II PG/Eco-22	Econometrics II PG/Eco-23	Indian Economy in the Post Reform Era PG/Eco-24
III	Optional Paper I	Optional Paper II	Optional Paper III	Optional Paper IV
IV	Optional Paper V	Optional Paper VI	Optional Paper VII	Optional Paper VIII
	Comprehensive PG/Eco-52			

Menu of Optional Papers:

Group A (To be offered in Semester III)	Group B (To be offered in Semester IV)
PG/Eco 30:Advanced Econometrics I	PG/Eco 40:Advanced Econometrics II
PG/Eco 31:Development Economics I	PG/Eco 41:Development Economics II
PG/Eco 32:Financial Economics	PG/Eco 42:Corporate Finance and Financial Institutions
PG/Eco 33:International Economics I: Pure Theory of Trade	PG/Eco 43:International Economics II: Trade Policies, Standards and Regulations
PG/Eco 34:Operation Research	PG/Eco 44:International Finance & Risk Management
PG/Eco 35:Games and Information	PG/Eco 45:Economics of Social Sectors
PG/Eco 36:West Bengal Economy	PG/Eco 46:Environmental Economics
PG/Eco 37:Resource Economics	PG/Eco 47 Economics of Corruption
PG/Eco 38:Public Economics I	PG/Eco 48: International Economics III: Money, BOP and Exchange Rate
PG/Eco 39:Experimental Economics	PG/Eco 49:Advanced Econometrics III
	PG/Eco 50: Public Economics II
	PG/Eco 51:Economics of Networks

FIRST YEAR SEMESTER I**Course No. PG/ECO-11: Microeconomics I (40 lectures)**

1. Consumer behaviour, production including profit maximization and profit function (15)
2. General equilibrium in a pure exchange economy and with production: Walrasian and Edgeworthian foundations of perfect competition, welfare theorems (13)

3. Uncertainty : Preferences over lotteries, representation functions, expected utility theorem, risk preference and measures of absolute and relative risk aversion, equivalence theorems, stochastic dominance (12)

Suggested Readings:

1. H. Varian. *Microeconomic Analysis*, W.W. Norton and Company, 3rd Edition, 1992.
2. H. Gravelle and R. Rees. *Microeconomics*, Pearson Education, 3rd Edition, 2004.
3. A. Mas-Colell, M. Whinston and J Green. *Microeconomic Theory*, Oxford University Press, 1995.
4. F. Cowell. *Microeconomics*, Oxford University Press, 2006.
5. G. Jehle and J. Reny. *Advanced Microeconomic Theory*, Pearson Education, 2000.
6. A. Mukherji. *Walrasian and Non-Walrasian Equilibria: An Introduction to General Equilibrium Analysis*, Clarendon Press, Oxford, 1990.

Course No. PG/Eco-12: Macroeconomics I (40 lectures)

1. Keynesian Analysis in Walrasian Framework: Disequilibrium Models

Incompatibility of Walras Law and neoclassical synthesis of Keynes's General Theory- contribution of Clower, Leijonhufvud, Barro-Grossman-Non-Walrasian microfoundation of Keynes consumption function and effective demand. Malinvaud's approach-concept of temporary equilibrium. Benassy's formalization of non-Walrasian disequilibrium macroeconomics.

2. Rational Expectations and New Classical Macroeconomics

The basic concepts- the Phillips curve and Lucas supply equation- first and second generation currency crisis.

3. New Keynesian Macroeconomics

Price setting under monopolistic competition, menu cost, time-dependent rules, staggering and the effects of money- State dependent rules and the effects of money- Labour market: efficiency wages- Financial markets and credit rationing.

4. Structuralist Macroeconomics

Seminal ideas of Lewis, Kaldor and Taylor: economic structure matters for economic outcome, development of Kaldor's idea into an agriculture-industry macro model of the world economy-alternative role of intersectoral terms of trade and agricultural marketable surplus for industrial development. 'Stagnationism' and 'exhilarationism' – development of neo-Kaleckian macro model –wage-led growth vis-à-vis profit-led growth. (12)

Suggested Readings:

1. Wendy Carlin and David Soskice. *Macroeconomics and the Wage Bargain: A Modern Approach to Employment, Inflation, and the Exchange Rate*, Oxford University Press, 1990.
2. Brian Snowdon and Howard R. Vane. *Modern Macroeconomics: Its Origins, Development and Current State*, Edward Elgar Cheltenham, UK • Northampton, MA, USA, 2005.
3. J.P. Benassy. *Macroeconomics: An Introduction to the Non-Walrasian Approach*, Academic Press, New York, 1986.
4. R.J. Barro and H.I. Grossman. *A General Disequilibrium Model of Income and Employment*, American Economic Review, 61, 82-93, 1971.
5. Robert W. Clower. *The Keynesian Counter-Revolution: A Theoretical Appraisal*, in R. W. Clower, ed., *Monetary Theory*. London Penguin Books, 1969.
6. Amit Bhaduri and Rune Skarstein. *Effective demand and the terms of trade in a dual economy: a Kaldorian perspective*, Cambridge Journal of Economics, 2003.
7. Amit Bhaduri and Stephen Marglin. *Unemployment and the real wage: the economic basis for contesting political ideologies*, Cambridge Journal of Economics, 1990.
8. Amit Bhaduri. *On the dynamics of profit-led and wage-led growth*, Cambridge Journal of Economics, 2007.
9. Lance Taylor. *Reconstructing Macroeconomics. Structuralist Proposals and Critiques of the Mainstream*, Harvard University Press, Cambridge, MA, 2004.
10. Lance Taylor. *Structuralist Macroeconomics*, Basic Books, New York, NY, 1983.

Course No. PG/Eco-13: Mathematical Economics

Total number of lectures: 45+Tutorials+ problems

A. Dynamic optimization (22 Lectures)

(i) Optimal control theory (12 Lectures)

The maximum principle

Dealing with different types of Transversality condition

Economic interpretation of optimal control Theory

Sufficient Condition

Optimal control with Different Types of Constraints: Applications

(ii) Dynamic programming (10 Lectures)

Bellman's equation

Solution procedure

Economic Application

B. Mathematical Analysis (23 Lectures)

Real numbers: Set notation; the set of real numbers; inequalities; roots; quadratic equations; irrational numbers; modulus (2 lectures)

Continuum Property: The continuum property; Supremum and infimum; Maximum and minimum; Intervals; Manipulations with supremum and infimum **(2 lectures)**

Natural numbers: Introduction; Archimedean property; Principle of induction **(2 lectures)**

Convergent sequences: Sequences; Definition of convergence; Criteria for convergence; Monotone sequences; some simple properties of convergent sequences; divergent sequences **(1 lecture)**

Subsequences: Definition with example; Bolzano Weierstrass Theorem; lim sup and liminf; Cauchy sequences **(2 lectures)**

Series: Definitions; Series of positive terms; Elementary properties of Series; Series and Cauchy sequences; Absolute and conditional convergence; Manipulations with Series **(2 lecture)**

Functions: Notation; Polynomial and Rational Functions; Combining Functions; Inverse Functions; Bounded Functions **(2 lectures)**

Limits of functions: Limits from the left and right; definition of limit, continuity at a point; connection with convergent sequences; Properties of limits; limits of composite functions; divergence **(2 lectures)**

Vectors: Introduction, Length and angle in \mathbb{R}^n , Inequalities, Distance, Direction, Lines , hyperplanes, flats, vector functions ; linear and affine functions; convergence of sequences in \mathbb{R}^n , convergence of functions, continuity at a point, properties of limits, limits along a path **(4 lectures)**

Vector Derivatives: Directional derivatives; Partial derivatives; Notation; Local maxima and minima; differentiable functions; derivatives; gradient; manipulation of derivatives; chain rule; stationary points; second derivatives; mean value theorems ; Eigen values; Principal Minors; Classification of stationary points ; differentials **(4 lectures)**

Suggested Readings:

1. A. C. Chiang. *Elements of Dynamic Optimization*, Mc Graw Hill, 1992.
2. V. Morton, I. Kamien and Nancy L. Schwartz. *The Calculus of Variation and Optimal Control in Economics and Management*, 2nd Edition, Elsevier, 1991.
3. M. D. Intriligator. *Mathematical Optimization and Economic Theory*, Society for Industrial and Applied Mathematics; 1st edition, 1987.
4. T. J. Sargent. *Dynamic Macroeconomic Theory*, Harvard College, 1987.
5. J. Adda and R. Cooper. *Dynamic Economic, Quantitative Methods and Applications*, MIT Press, 2003.
6. R. K. Sundaram. *A First Course in Optimization*, OUP, 1996
7. K. C. Binmore. *Mathematical Analysis*, Cambridge University Press, 1991.

Course No. PG/Eco-14: Econometrics I (Compulsory paper) (Theory supported by computer Applications)

Total number of lectures: 45+Tutorials+ problems

Single Equation Models

1. Linear Models

- (a) Properties of Conditional Expectation, Linear Projections **(4 Lectures)**

- (b) Basic Asymptotic Theory (4 Lectures)
- (c) K variable Classical Linear Regression Model ;summary (4 Lectures)
- (d) Violation of CLRM assumptions, Generalized least square estimator, properties of generalized least square estimator, different test for heteroscedasticity and autocorrelation, omitted variable , errors in variable (12 lectures)
- (e) Instrumental variable method, two stage least square method (6 Lectures)

2. Non linear Models

- (a) Maximum Likelihood Method : K variable case, properties of maximum likelihood estimator, Limited information maximum likelihood method of estimation (4 Lectures)
- (b) Limited dependent variable :limited Dependent Variable :Linear Probability model, Logit and probit model (6 Lectures)
- (c) Generalized Method of Moment estimator(4 Lectures)

Suggested Readings :

1. J.W. Wooldridge. *Econometric Analysis of Cross section and Panel Data*, MIT Press, 2010.
2. A. Collin Cameron and P.K.Trevedi. *Micro Econometric Methods and Applications*, Cambridge University Press, 2005.
3. W. H. Green. *Econometric Analysis*, Pearson Education, 2003.

FIRST YEAR SEMESTER II

Course No. PG/ECO-21: Microeconomics II (40 lectures)

1. Static Games of Complete Information (7 lectures)
Solution Concepts-Pure and mixed strategy Nash, applications.
2. Dynamic Games of Complete Information (7 lectures)
Solution Concepts - Subgame perfect Nash, backward induction, applications.
3. Static Games of Incomplete information (8 lectures)
Solution Concepts - Bayesian Nash equilibrium, applications.
4. Dynamic Games of Incomplete information (10 lectures)
Solution Concepts - Perfect Bayesian equilibrium, Signaling Games.
5. Principal Agent Models: Hidden Action and Hidden Information. (8 lectures)

Suggested Readings:

1. Martin J. Osborne. *An Introduction to Game Theory*, the MIT Press, 2003.
2. A. Mas-Colell, M. Whinston and J Green. *Microeconomic Theory*, Oxford University Press, 1995.

3. J. J. Laffont and D. Martimort. *Theory of Incentives: The Principal Agent Model*, Princeton University Press, 2001.
4. P. Bolton and M. Dewatripont. *Contract Theory*, The MIT Press, 2005.
5. D. Fudenberg and J. Tirole. *Game Theory*, The MIT Press, 1991.
6. R. Gibbons. *Game Theory for Applied Economists*, Princeton University Press, 1992.
7. C. D. Aliprantis, and S. K. Chakraborti. *Games and Decision Making*, Oxford University Press, 2000.

Course No. PG/ECO-22: Macroeconomics II (40 lectures)

1. Basic Infinite Horizon Models (8)
Ramsey Problem: Command Economy, decentralized economy, dynamic efficiency- Government in the decentralized economy
2. Overlapping Generations Model (10)
OLG with production: two period lives, dynamic inefficiency and altruism. Social Security models under OLG.
3. Theory of Real Business Cycles (10)
Unpredictable shocks and their effects on output and employment, mainly in Ramsey Infinite horizon models. Fluctuations of income under two period OLG model
4. Modern Theory of Growth (12)
Dissatisfaction with neoclassical theory- One sector models of endogenous growth: the AK model- Endogenous growth and human capital formation: the Lucas model- Endogenous growth and R&D- Romer model

Suggested Readings:

1. O.J. Blanchard and S. Fischer. *Lectures on Macroeconomics*, Prentice Hall of India, 1989
2. R. J. Barro and X. Sala-i-Martin. *Economic Growth*, Prentice Hall of India, 2004.
3. R. Solow. *Growth Theory: An Exposition*, New York, Oxford University Press, 2000.
4. David Romer. *Advanced Macroeconomics*, N.Y.: McGraw Hill, 1996.
5. Aghion Philippe and Peter Howitt. *The Economics of Growth*, MIT Press, 2008.

Course No. PG/ECO-23: Econometrics II (Compulsory Paper) Theory supported by computer Applications)

Total number of lectures: 45+Tutorials+ problems

System of Equations

A. Linear Models

1. Introduction to system of equation (4 lectures)
 - (a) Seemingly Unrelated Regression Equation Model
 - (b) Panel Model
2. Simultaneous Equation Model

- (a) Single equation Method of estimation : Indirect least square estimator(ILS), two stage least square estimator (2SLS), Instrumental variable estimator(IV)
- 3. Panel Data Analysis: Introduction to static Panel Model **(4 lectures)**
- 4. An introduction to time series data: Structure of time series AR, ARMA, MA, ARIMA, identification of series –Box Jenkins approach, Concept of stationarity, distinction between Trend stationary process and Difference stationary process, unit root test, co integration and error correction, Engle Granger Methodology

B. Non Linear Models

- 1. Full information maximum likelihood method of estimation
- 2. Generalized Method of Moments for System of Equations

Suggested Readings:

- 1. J.W. Wooldridge. *Econometric Analysis of Cross section and Panel Data*, MIT Press, 2010.
- 2. A. Collin Cameron and P.K.Trevedi. *Micro Econometric Methods and Applications*, Cambridge University Press, 2005.
- 3. W. H. Green. *Econometric Analysis*, Pearson Education, 2003.
- 4. W. Enders. *Applied Time Series Econometrics*, Wiley, 2004.

Course No. PG/ECO-24: Indian Economy in the Post Reform Era (42 lectures)

Course Instructor(s) need to choose Module I, and any other four modules.

- 1. Alternative Strategies of development: State vs markets, Import substitution vs Export Promotion; Rationale of Economic Reforms in India; Political Economy of Reforms in India and the typology of reforms **(6)**.
- 2. Growth and sectoral performance of the economy: aggregate GDP growth, structural change and structural breaks, and productivity growth during the reform era, manufacturing growth and issues relating to productivity, market structure and economies of scale; service sector growth; regional disparity in growth and per capita income and issues related to the convergence debate.
- 3. Trade and Payments Reforms in India: Contours of trade and payments reforms in India including WTO related reforms in market access, Merchandise trade performance and determinants, Dimensions of Services Trade, Capital Flows and their impact, Balance of Payments and issues related to Accumulation of Foreign Exchange Reserves, Remittances, Capital Account Convertibility. **(12)**
- 4. Fiscal Reforms in India – Profile of Fiscal Reforms, Issues relating to deficit and growth, FRBM Act and fiscal prudence, Reforms with respect to State Finances, central –state relations, VAT, Issues relating to public debt **(12)**

5. Financial Sector Reforms in India – Issues relating to reforms in banking, insurance, pensions, exchange rate and capital market; Monetary Policy reforms and their implications (12).

6. Poverty and Inequality in India – Measurement issues, Regional and sectoral dimensions in poverty and inequality, Multidimensional poverty indices; Recent debates on poverty and inequality during reforms; Public policies relating to poverty eradication and inequality reductions; Inclusive growth strategy (12).

7. Labour market reforms, employment and unemployment in formal and informal sectors-regional spread of employment-unemployment, jobless growth, skill formation, social protection for unorganized labour during reforms; labour market discrimination, employment guarantee act and its impacts (12).

8. Social Sector Reforms in India- HDI in India and her states-progress and constraints; Education sector development, and the National Education Policy; Health sector reforms in India, and National Health policy. Towards social convergence. (12)

9. Agriculture: Agricultural Growth and Distribution, Agriculture Commodity Markets, Contract Farming, Technology and Agriculture, WTO and Indian Agriculture; Rural Indebtedness (12).

10. Issues relating to Infrastructure in the Indian economy: Identifying the constraints, Government policies, Case studies of economic impact of selected sectors including roads, energy, railways, ports, irrigation, sanitation and water supply (12)

Suggested Readings:

1. I. J. Ahluwalia and I. M. D. Little (eds). *India's Economic Reforms and Development: Essays for Manmohan Singh*, New Delhi: OUP, 1998.
2. M. S. Ahluwalia, S.S. Tarapore and Y. V. Reddy. (eds.). *Macroeconomics and Monetary Policy*, New Delhi: OUP, 2004.
3. N. Banerjee and S. Marjit. (eds.). *Development, Displacement and Disparity: India in the Last Quarter of the Twentieth Century*, Hyderabad: Orient Longman, 2005.
4. P. Balakrishnan. *Economic Growth in India*, New Delhi: OUP, 2010.
5. K. Basu (ed.). *India's Emerging Economy*, New Delhi: OUP, 2005.
6. T. Callen, P. Reynolds and C. Towe. *India at the Crossroads: Sustaining Growth and Reducing Poverty*, Washington D.C.: International Monetary Fund, 2001.
7. R. Chakravarty, *The Financial Sector in India*, New Delhi: OUP, 2006
- 8.a. B. Chatterjee (edited). *Economic Liberalisation in India*, Allied Publishers, 1998.
- 8.b. B. Chatterjee and A. K. Karmakar (eds.). *Capital Account Convertibility in India*, New Delhi: Deep & Deep Publications, 2011.
9. Government of India, MoF, Economic Survey, Various Issues.
10. A. Gulati and T. Kelley. *Trade Liberalization and Indian Agriculture*, New Delhi: OUP, 2001.
11. J. A. Hanson and S. Kathuria (eds.). *India: A Financial Sector for the Twenty-first Century*. New Delhi: OUP, 2002.
12. India Development Report, Various Years. New Delhi: OUP.

13. V. Joshi and I. M. D. Little. *India: Macroeconomics and Political Economy, 1964-1991*. New Delhi: OUP, 1994.
14. V. Joshi and I. M. D. Little. *India's Economic Reforms (1991- 2001)*. New Delhi: OUP, 1996.
15. A. K. Karmakar. *BoP Theory and Policy – The Indian Experience*, Deep & Deep Publications, New Delhi, 2010.
16. A. O. Krueger (ed). *Economic Policy Reforms and the Indian Economy*. New Delhi: OUP, 2002.
17. R Mohan (ed). *Facets of the India Economy*, New Delhi: OUP, 2002.
18. National Human Development Report Various Issues, New Delhi : OUP
19. K. Pushpangadan and N. Shanta. *The Dynamics of Competition: Understanding India's Manufacturing Sector*, New Delhi: OUP, 2009.
20. A. Panagariya. *India: The Emerging Giant*, USA: OUP, 2008.
21. M. Rakshit. *Macroeconomics of Post-Reforms India*, New Delhi: OUP, 2008a.
22. M. Rakshit. *Money and Finance in the Indian Economy*, New Delhi: OUP, 2008 b.
23. R. Radhakrishna and S. Ray (eds.). *Handbook of Poverty: Perspectives, Policies and Programmes*, New Delhi: OUP, 2005.
24. Y.V. Reddy. *Lectures on Economic and Financial Sector Reforms in India*, New Delhi: OUP, 2004.
25. Sebak K. Jana and Asim K. Karmakar (ed). *Financial Sector Liberalisation in India: Theory and Emperics*, Regal Publications, New Delhi, 2015.
26. S. Sikdar. *Contemporary Issues in Globalization: An Introduction to Theory and Policy in India*, New Delhi: OUP, 2002.
27. S. Tendulkar and T. A. Bhavani. *Understanding Reforms*, New Delhi: OUP, 2007.
28. A. Vaidyanathan and K. L. Krishna. *Institutions and Markets in India's Development*, New Delhi: OUP, 2007.
29. Economic and Political Weekly and Other Selected Journals- Selected Issues

SECOND YEAR SEMESTER III

Optional Papers :Group A

Course No. PG/Eco-30: Advanced Econometrics I

1. Model Specification and specification Error (**5lectures**)
2. Advanced Topics in GMM (**5 lectures**)
3. Dynamic Panel Models (**10 lectures**)
4. Advanced topics in limited dependent variables models- multinomial and ordered Logit, Probit (**15lectures**)
5. Selection models (**10 lectures**)

References

1. J.W. Wooldridge. *Econometric Analysis of Cross section and Panel Data*, MIT Press, 2010.

2. A. Collin Cameron and P.K.Trevedi. *Micro Econometric Methods and Applications*, Cambridge University Press, 2005.
3. W. H. Green. *Econometric Analysis*, Pearson Education, 2003.
4. R. Davidson and J.G.Mackinnon. *Econometric Theory and Methods*, Cambridge University Press, 2004.

Course No. : PG/ECO-31: Development Economics I

1. Economics of Institutions (10)

- 1.1. Evolution of Institutions and their role in an economy: Existing views; Political organization and freedom; Role of collective action; Role of financial institutions in economic development: Theory (Acemoglu and Zilibotti model), evidence; Decentralisation of Institutions: issues involved with special reference to Indian experience

2. Informal Institutions: Social Networks: (10)

- 2.1. Social Networks as an Institutions: Grief's Theory about coalition of Maghribi traders
- 2.2. Interaction and interdependence between formal and informal Institutions-impact of such interactions on economic development
- 2.3. Social Network as an instrument of learning-its role in technology adoption
- 2.4. Social Network as a source of informal credit and insurance a developing economy- theory and evidence
- 2.5. Social Network and the rate of technology adoption developing countries theory and evidence
- 2.6. Valuation of Social Networks concept of Social capital

3. Issues in Micro- Finance (6)

- 3.1. Economics of ROSCA
- 3.2. Micro Finance mechanisms: Peer Selection, Peer monitoring and dynamic incentives- solution to moral hazard, adverse selection, and costly state verification;
- 3.3. Country Experiences
- 3.4. Strength and weaknesses of micro-finance programme.

4. Standard of Living (6)

- 4.1. Alternative approaches to standard of living
- 4.2. Notions of commodities, capabilities, functioning and entitlements;
- 4.3. Social choice and Development; axiomatic basis of alternative development indicators and their `critiques.

5. Development and Freedom (6)

- 5.1. Notions of freedom, rights and duties;
- 5.2. Justice and freedom-John Rawls and A.K.Sen`s contribution.;
- 5.3. Individual choice, social choice and freedom as capability enhancing towards a new paradigm of development economics

6. Economics of informal sector (7)

- 6.1. Concept of informal sector, evidence from developing countries
- 6.2. Determinants of size of informal sector & its linkage structure with the rest of the economy- theories and evidence
- 6.3. Possible dynamic of the informal sector in the process of economic development some theories and evidence.

Suggested Readings:

1. A.K. Sen. *The standard of Living*, Cambridge University Press, 1987.
2. A.K. Sen. *Commodities and Capabilities*, North Holland, 1985.
3. A.K. Sen. *Development as Freedom*, Oxford University Press, 1999
4. A.K. Sen and Jean Dreze. *Hunger and Public Action*, Clarendon Press, 1989.
5. A. K. Sen and Jean Druze (eds). *The Political Economy of Hunger*, Vol. 1,2, and 3, Clarendon Press, 1990
6. A.K. Sen. *Rationality and Freedom*, Oxford University Press 2002.
7. Martin Ravallion. *Markets and Famines*, Clarendon Press, 1987.
8. Partha Dasgupta, *An Inquiry into Well Being and Destitution*, Clarendon Press 1993.
9. Partha Dasgupta. *Human Well-being and Natural Environment*, Oxford University Press, 2002.
10. *Handbook of Development Economics: VOL I & II.*
11. P. Bardhan and C. Udry. *Development Microeconomics*, OUP, 1999.
12. S. Fukuda- Parr and A. K. Shiva Kumar (eds). *Readings in Human Development*, OUP. 2003.
13. S.Bowles. *Microeconomics: Behavior, Institutions and Evolution*, Princeton University Press, 2006.
14. Articles from various Journals will supplement this reading list.

Course No: PG/ECO-32. Financial Economics

This paper provides a broad overview in basic issues in Finance relating to Corporate Finance, Portfolio theory, Financial Markets and Risk & Insurance

1 Portfolio Theory (10)

Mean Variance Criterion-Systematic & Unsystematic risk

Portfolio Diversification- Simple & Markowitz

Efficient Frontier & Capital Market Line

Capital Asset Pricing Model

Arbitrage Pricing Theory

2. Corporate Finance (10)

Capital Budgeting- Net Present Value and Other Investment Criteria

Capital Structure- Financial Leverage & Capital Structure Policy, Modigliani-Miller

Propositions, Short Term Financial Planning- Net working Capital, Operating cycle & Cash Cycle, Alternative financing policies for current assets, Cash budget, short term borrowing, Cash & Liquidity Management.

Dividends & Dividend Policy– Basic Issues, Cash Dividends & Dividend

Payments, Stock repurchase, Stock Splits & Stock Dividends

Debt Financing- Valuing Risky Debt, Term structure of interest rates (Expectation Hypothesis, Liquidity- Preference Hypothesis & some new theories of Term Structure), Yield to Maturity, Duration & Volatility, Default Risk & Bond Ratings

3. Financial Markets (10)

Analysis of Financial Markets -Fundamental analysis, Technical analysis, Efficient Market Hypothesis

Functioning of different Financial Markets (Advanced level) – Money Market, Stock market, Bond market, Forwards Market, Futures & Options Market, Currency Futures & Currency Options Market, Foreign Exchange Market, Commodity Futures Market etc.

International Financial Markets & Fundamental Parity conditions

4. Financial Risk & Insurance (10)

Basic concepts

Functioning of the Insurance sector

Risk Management techniques- Non insurance methods

Insurance as a Risk management Techniques- Principles & Policy Provisions

Innovative Financial Instruments for ex ante Disaster Risk Management

Suggested Readings:

1. S.A.Ross, R.W.Westerfield and B.D. Jordon, *Fundamentals of Corporate Finance*. McGraw Hill/ Irwin, 2012.
2. R.A. Brealey and S.C. Myers. *Principles of Corporate Finance*. McGraw Hill/ Irwin, 2007.
3. S. Kevin. *Portfolio Management*; Prentice Hall India, 2006.
4. J. C. Hull. *Options, Futures and Other Derivatives*, Pearson Education, 2014.
5. P. Chandra. *Financial Management: Theory and Practice*, McGraw Hill Education Pvt. Ltd., 2011.
6. J.S. Trieschmann, R.E. Hoyt and D.W. Sommer. *Risk Management and Insurance*, Cengage Learning, 2004.

Course No. PG/Eco-33: International Economics I: Pure Theory of Trade

This course will cover generalization of competitive trade models in many commodity-many factor cases, implications of trade on unemployment, inequality and growth, theories of intra-industry trade and its recent developments, and trade in factors and in services. The allocation of total number of 45 lectures is to be decided upon by the concerned teacher.

- **Inter-Industry Trade and Comparative Advantage in Higher Dimensions and Measurement Issues**
Comparative advantage with continuum of goods; Factor content and HOV theorem; Price magnification, output magnification and FPE theorem in multi-good-multi-factor cases.
- **Digressions on HOS Model**
Non-traded good, specific factors
- **Trade, Unemployment and Income Inequality**
- **Theories of Intra-industry Trade:**
Love of variety approach; characteristic approach; gains at the extensive margin; strategic trade theory: Reciprocal dumping theory; intra-industry trade in quality-differentiated goods; Firm heterogeneity and intra-industry trade

- **Trade Empirics**
Leontief paradox and test of comparative advantage; measuring comparative advantage; intra-industry trade indices
- **Trade in Services**
- **Trade in Factors of Production and in Intermediate Goods**
Mundell's GPE result; capital inflow and welfare; emigration versus capital inflow; fragmentation, outsourcing and trade.

Suggested Readings:

1. J. N. Bhagwati, A. Panagariya and T.N. Srinivasan. *Lectures on International Trade*, MIT Press, 1998.
2. L. Rivera-Batiz and M. Olivia. *International Trade: Theory, Strategies and Evidence*, Ch.3, Oxford University Press, 2003.
3. Selected papers from Journals.

Course No. PG/Eco 34: Operation Research

Total number of lectures: 45+Tutorials+ problems

Analysis of the purpose of the subject; Basic steps in operations research and any Three from the following topics

- 1) **Markov Analysis**
[Markov Chains – concepts, characteristics and long run properties; Continuous time Markov Chains; Markov decision process]
- 2) **Network Analysis**
[Theory of graph and Network Construction; Maximal flow problem and its solution; Application of network theory in Project management]
- 3) **Inventory Control Theory**
[Concepts relating inventory; Model Building; Solutions under different conditions]
- 4) **Simulations**
[Concepts and procedures; Applications of simulations in different fields]
- 5) **Integer Linear Programming**
[Concepts and Procedure of solution; Applications]
- 6) **Queuing Theory**
[Concepts and features; different types of queuing models and the techniques of solutions].

Suggested Readings:

- 1) F. S. Hiller and G. J. Liberman. *Introduction to Operations Research*, Mc Graw Hill, 1990.
- 2) H. A. Taha. *Operations Research: An Introduction*, Pearson, 2010.

- 3) J. K. Sharma. *Quantitative Techniques for Managerial Decisions*, Macmillan, 2001.
- 4) M. K. Starr and D. W. Miller. *Inventory Control – Theory and Practice*, Prentice Hall, 1962.

Course No.: PG/ECO-35: Games and Information

At least two topics of the following will be covered spread over 40 lectures. Uncertainty Theory will be a pre-requisite.

1. Complete Contracting Theory (Pre and Post Contractual Problems).
2. Incomplete Contracting Theory- Renegotiation and Hold-up problems, Specific Investments, Strategic ambiguity, Applications.
3. Mechanism Design and Implementation – Dominant Strategy Implementation (Groves-Clarke-Vickery Mechanism), Bayesian Implementation, Bilateral Trading Mechanisms.
4. Aspects of Cooperative Game Theory- TU Games, Core, Shapley Value, NTU Games, Cooperative Bargaining.

Suggested Readings:

1. A. Mas-Colell, M. Whinston and J Green. *Microeconomic Theory*, Oxford University Press, 1995.
2. J. J. Laffont and D. Martimort. *Theory of Incentives: The Principal Agent Model*, Princeton University Press, 2001.
3. P. Bolton and M. Dewatripont: *Contract Theory*, The MIT Press, 2005.
4. D. Fudenberg and J. Tirole: *Game Theory*, The MIT Press, 1991.
5. Martin J. Osborne. *An Introduction to Game Theory*, The MIT Press, 2003.

Course No: PG/ECO-36 West Bengal Economy

(40 lectures)

1. Objective of studying Regional Economics.
2. Overall Economic Characteristics of West Bengal.
3. Growth Scenario: The State Domestic Product and its Components, 1970-2000.
4. Problems in the Agricultural Sector: Institutional Reforms, Technical Change, Agricultural Finance and Marketing.
5. Industrialisation: Formal versus informal, large versus small –scale.
6. Employment Scenario for the last three decades.
7. Problems of Service sector: Government and private sector
8. Decentralization: Institutional (like Panchayats) and financial (like municipal and Panchayat).

Suggested Readings:

1. V. K. Ramachandran and M Swaminathan (eds). *Financial Liberalization and Rural Credit in India*, Tulika Book, 2005.
2. Dilip Mukherjee and Debraj Roy (eds). *Readings in the Theory of Economic Development*, Oxford University Press, 2005.

3. B. A. de. Aghion and J. Morduch. *The Economics of Micro Finance*, Prentice-Hall of India, 2007.
4. Abhijit Vinayak Banerjee, Roland Benabou and Dilip Mukherjee (eds). *Understanding Poverty*, Oxford University Press, 2006.
5. Karla Hoff, A. Braverman and Joseph E. Stiglitz (eds). *The Economics of Rural Organization*, Oxford University Press, 1997.
6. Pranab Bardhan. *Agrarian Change*, Oxford University Press, 2002.
7. Pranab Bardhan. *Development Micro Economics*, Oxford University Press, 1999.
8. R. K. Sen (eds). *West Bengal Today*, Deep and Deep Publications Delhi, 2007.
9. Ajitava Raychaudhuri and Tuhin Das (eds). *West Bengal Economy*, Delhi: Allied Publishers, 2005.
10. Various Papers from Journals and Edited Books

**Course No: PG/ECO-37: Resource Economics
(40 lectures)**

1. Introduction – Elementary Capital Theory- The maximum Principle of optimal control Theory.
2. Renewable Resource- Concept of population growth curve- logistic growth-fishery as renewable resource- sole ownership fishery- monopoly fishery- fishery in common fishing ground-strategic fishing.
3. Forestry- optimal rotation period- socially optimum rotation period when forestry has environmental amenities- forest policies.
4. Non-renewable resource- optimal depletion- competitive, monopoly and oligopolistic exploitation of exhaustible resource- fringe and cartel - exploration–taxation of exhaustible resource- scarcity.
5. Common property resource-externalities in common property resource extraction market equilibrium vs. efficiency – measures to correct externality- privatization, quota-licence-taxation, community management of common property resources
6. Sustainable development-concept of Solow-Hartwick rule-natural resource accounting.

Suggested Readings:

1. N. Hanley, J. Shogren and Ben White. *Environmental Economics-In Theory and Practice*, Palgrave Macmillan, 2007.
2. A. C. Chiang. *Elements of Dynamic Optimisation*, Waveland Pr Inc, 1999.
3. J. M. Conrad and C. W. Clark. *Natural Resource Economics*, Cambridge University Press, 1987.
4. P. S. Heal and G. M. Dasgupta, *Economic theory and Exhaustible Resource*, Cambridge University Press, 1979.
5. N. Hanley, J.F. Shrogen and J. M. Hartwick. *Intergenerational Equity and Investing Rents from Exhaustible Resource*, AER, Vol. 67 no.5, 1977.
6. Elinor Ostrom. *Governing the Commons: The Evaluation of Institutions for Collective Actions*, Cambridge University Press, Cambridge, 1990.
7. Tom Tietenberg and Lynn Lewis. *Environmental and Natural Resource Economics*, 8th Edition, Pearson, 2008.

Course no: PG/ECO-38. Public Economics I
(40 lectures)

1. Fiscal Federalism with India as an Example
2. Tax Incidence: Partial and General Equilibrium, Salience effect
3. Measurement of Dead Weight Loss
4. Tax Design: Direct, Indirect (including VAT)
5. Political Economy of Taxation

References:

1. J. Hindriks and G. Myles. *Intermediate Public Economics*, MIT Press, 2nd Edition, 2013.
2. C. Rangarajan and D. Srivastava. *Federalism and Fiscal Transfers in India*, Oxford University Press, (2011).
3. I. Rajaraman. *A Fiscal Domain for Panchayats*, Oxford University Press, 2003
4. B. Salanie. *Economics of Taxation*, MIT Press, 2003.
5. A. Atkinson and J. Stiglitz. *Lectures on Public Economics*, McGraw Hill, 1980.
6. G. Myles. *Public Economics*, Cambridge University Press, 1995.
7. Mirrlees Review: Tax by Design, Oxford University Press, 2009.
8. T. Persson and G. Tabellini. *Political Economics*, MIT Press, 2000.
9. Papers from various journals and various volumes of Handbook of Public Economics

Course No. PG/Eco-39: Experimental Economics
(40 lectures)

1. History, Basics of Experimental Methods, Advantage and Limitation.
2. Decision and Games: Prisoners Dilemma, Ultimatum game and Trust Game
3. Public Goods game and the Voluntary Contribution mechanism
4. Expected utility hypothesis, Allais Paradox, Lottery Indifference Curve
5. Field and Natural Experiments
6. Non-monetised experiment
7. Protocol and Instruction
8. Practical with Z-TREE

Suggested Readings:

1. R. Plott and V. L. Smith. *Hand book of Experimental Economics*, Elsevier, 2008.
2. D. Davis and C. A. Holt. *Experimental Economics*, Princeton University Press, 1993.
3. A. Chaudhuri. *Experiments in Economics*, Routledge, 2008.
4. Gautam Gupta. *An Introduction to Experimental Economics*, Orient BlackSwan, Hyderabad, 2015.

Second Year, Semester IV

OPTIONAL COURSES: GROUP B

Course No. PG/Eco-40: Advanced Econometrics-II (40 lectures) (Prerequisite is Advanced Econometrics I)

1. Non parametric regression (10 lectures)
2. Advanced Topics in time series : multivariate time series, VAR, VECM, Impulse response function, variance decomposition, ARCH/GARCH Models (20 lectures)
3. Count Data Models (5 lectures)
4. Duration models (5 lectures)
5. Programme Evaluation (5 lectures)

References :

1. J. W. Wooldridge. *Econometric Analysis of Cross section and Panel Data*, The MIT Press, 2010.
2. A. Collin Cameron and P.K.Trevedi. *Micro Econometric Methods and Applications*, Cambridge University Press, 2005.
3. W. H. Green. *Econometric Analysis*, Pearson Education, 2003.
4. R. Davidson and J. G. Mackinnon. *Econometric Theory and Methods*, Cambridge University Press, 2004.
5. W. Enders. *Applied Time Series Econometrics*, Wiley, 2004.

Course No. PG/Eco-41: Development Economics II (Open economy issues in development, NO pre-requisite)

1. International Trade and Development Paradigms

Mercantilist Theory of Trade and Development; Classical Political Economists on Trade and Growth; the Post-World War II Debate on Free Trade vs. Trade Protection; Export Pessimism and Legacy of Inward-Looking Development Strategy; recent development crises

2. Problems of Trade in Primary Commodities

Prebisch-Singer Hypothesis of Unequal Distribution of Gains; Critique of Secular Deterioration of TOT; Unequal Exchange

3. Uneven Development, Trade and Growth

Structuralist Theories: Foreign Exchange, Savings, and Growth; Lewis-Nurkse Growth Process and Economic Dependence; North-South Trade, TOT, and Growth: exogenous growth models: Neo-Ricardian, Neo-Classical, Neo-Keynesian and Neo-

Kaleckian and Neo-Marxian models; endogenous growth model (innovation, imitation and growth): scale and non-scale economies and uneven growth.

4. Trade, Poverty and Inequality

Both short run and long run (or growth) effects of international trade and Globalization; Convergence debate and inequality among nations.

5. Capital Mobility and Labour Migration

International capital mobility and economic growth- alternative models of uneven growth ; FDI, Growth and Welfare; Technology Transfer; Outsourcing, Role of MNCs; Labour mobility /Migration and its impact on economic development.

6. WTO and the Multilateral Trade Agreements

Evolution, structure and function of WTO; WTO Rules of and Principles of Trade policy; Dispute Settlement Mechanism; the WTO Agreements .Trade in Services.

References :

1. Debraj Ray. *Development Economics*, Princeton University Press, 1998.
3. Arghiri Emmanuel. *Unequal Exchange*.
4. John Spraos. *Inequalising Trade*, Oxford University Press, 1983.
5. Amitava Krishna Dutt. *Growth, Distribution and Uneven Development*, Cambridge University Press, 1984.
- 6.R. Acharyya and Saibal Kar. *International Trade and Economic Development*, Oxford University Press, 2014.
7. Adrian Wood. *North-South Trade, Employment and Inequality*, Oxford University Press, 1994.
8. J. N. Bhagwati,A. Panagariya and T. N. Srinivasan. *Lectures on International Trade*, The MIT Press, 1998.
9. P. Aghion and P. Howitt. *Endogenous Growth Theory*, The MIT Press, 1997.
10. Ronald Findlay. *Survey of Trade and Development*, in Handbook of International Trade;
11. Select Articles from Economic Journal, Quarterly Journal of Economics ,Journal of International Economics,Journal of Development Economics,Cambridge Journal of economics and Econometrica, as are chosen by the teachers.

Course No. PG/Eco-42: Corporate Finance and Financial Institutions

For this course prerequisite is Financial Economics.

(40 lectures)

This course will mainly cover theories of Corporate finance, Corporate governance Financial intermediation, Financial services as networks while the last topic will cover “hands –on” modeling techniques of the theories and some other empirical aspects. Any three topics from the following list will be covered:

1. Corporate Finance

- a. Theories of Capital Structure
 - i. Modigliani-Miller Hypothesis revisited
 - ii. Agency Cost theories
 - iii. Theories relating to Asymmetric Information: Pecking order hypothesis and Signaling.
 - iv. A flavor of other theories about capital structure.
- b. Dividend policy- forms of dividends –Lintner model-dividend irrelevance hypothesis- role of taxes, transaction costs, agency problems and asymmetric information
- c. Corporate finance and product markets
- d. Earnings manipulations

2. Valuation of Companies

- a. Alternative ways of calculating cost of capital:
- b. Alternative methods of valuation of companies
- c. Use of financial statements in valuing a company

3. Market for corporate control.

- a. Financial structure and issues relating to corporate governance
- b. Takeovers and Mergers.

4. Financial Intermediation

- a. A brief discussion of theories about necessity of financial intermediation in general.
- b. Bank Intermediary-Special role of banks, Industrial Organization approaches to banking.
- c. Bank runs, role of deposit insurance, role of banking regulations, role of prudential norms.
- d. A discussion of Basel Accord in this context.

5. Other financial intermediaries

- a. Mutual funds
- b. Insurance
- c. Venture capital Funds.

6. Financial services as networks.

- Adoption of internet economy by financial services sector and financial markets
- b. Impact of e-finance on different agents: theory and evidence.

7. Financial Modeling (meant to be a project based topic)

- a. A discussion of sources of data.
- b. Financial modeling using EXCEL Functions.
- c. Analyzing problems in financial economics using Econometric Techniques (time series, Panel data techniques, Limited dependent variable models).
- d. Factor analysis and Cluster analysis techniques, Analysis of Variance.

Suggested Readings:

1. R.A. Brealey and S.C. Myers. *Principles of Corporate Finance*. McGraw Hill, 2007.
2. J. Tirole. *The Theory of Corporate Finance*, Princeton University Press, 2006.
3. R. N. Bebczuk. *Asymmetric Information in Financial Markets: Introduction and Applications*. Cambridge University Press, 2003.
4. F. Allen and D. Gale. *Comparing Financial Systems*. The MIT Press, 1999.
5. F. Xavier and J.C. Rochet. *Microeconomics of Banking*, The MIT Press, 2008.
6. S. Benninga. *Financial Modeling*, The MIT Press, 2008.
7. C. Brooks. *Introductory Econometrics for Finance*. Cambridge University Press, 2002.

8. Y. Lengwiler. *Micro foundations of Financial Economics*. Princeton University Press, 2004. This reading list will be supplemented by articles from different Journals and selected chapters from other books.

Course No. PG/Eco-43: International Economics II: Trade Policies, Standards and Regulations

This course will cover unilateral, regional and reciprocated/coordinated trade policy issues, political economy of trade policies, and role of institutions, standards and regulations.

Pre-requisite for this course is International Economics I: Pure Theory of Trade

The allocation of total number of 45 lectures is to be decided upon by the concerned teacher in each semester.

- **Unilateral and Non-Cooperative Trade Policies**
Revisiting protectionist trade policies in competitive framework; Strategic trade policies; Trade and industrial policy under information externality
- **Political Economy of Trade Policy I**
Lobbying and endogenously determined trade policies: The different approaches; level and mode of protection under political-support function approach; lobbying and contribution approaches; cross-country evidences
- **Political Economy of Trade Policy II**
Lobbying or rent-seeking activities under trade protection and welfare implications: Monopoly-seeking lobby; rent-seeking under import quota; rent-seeking versus tariff-seeking
- **Reciprocated and Coordinated Trade Policies**
Vinerian theory: trade creation and trade diversion effects of Free Trade Agreements; delegations of trade policy setting in Customs Union; coalition games and equilibrium structure of trade blocs; Evolution of European Union as a case study; Contemporary Regionalism and the East Asian experience; regional versus global free trade (Spaghetti bowl effect; political economy approach towards resolutions of conflict)
- **Product Standards, Regulations and Trade**
Labour standards, child labour and trade sanctions; Technical barriers to trade and quality regulations; TRIPS, innovation and parallel imports; Environmental standards and trade; evidences on migration of dirty industries.

References: Select Papers from Journals

Course No. PG/Eco-44: International Finance & Risk Management

For this course prerequisite is Financial Economics of PG III semester (40 lectures)

This course will deal with the analysis of financial market behaviour including issues relating to international financial market, derivatives and options market with implications on corporate

finance and financial risk assessment. Case studies and application of estimation techniques shall be covered for relevant topics.

At least five topics will be covered from the following:

1. Risk & Exposure in Financial Market Foreign Exchange Exposure & Risk

Hedging Risk & Exposure
Speculation, Market efficiency & forecasting

2. International Financing

Bond Financing
Equity Financing
Bank Financing, Direct Loans & Swaps

3. International Portfolio Investment

International Correlation Structure & Risk Diversification
Optimal International Portfolio Selection
International Capital Asset Pricing Model
Segmentation vs. Integration of Capital Markets

4. International Corporate Finance

International Capital Structure & Cost of capital
International Capital Budgeting

5. Options & Option Valuation

Call & Put Options – Put-Call Parity
Behavior of Stock Prices & Markov property
Black- Scholes Model & Options Pricing Theory
Implied Volatilities
Options & Capital Structure
Options & Capital Budgeting
Options & Corporate Mergers

6. Financial Risk Hedging Strategies & Greek Letters

Stop Loss Strategy
Delta, Gamma, Theta, Vega, Rho
Scenario Analysis
Portfolio Insurance

7. Volatility Smiles

Put-Call Parity revisited
Foreign Currency Options
Equity Options
Volatility Term Structure & Volatility Surfaces

8. Financial Risk Estimation

Market Risk, Credit Risk, Operational Risk
Value-at-Risk models (VaR)-Variance-Covariance, Historical Simulation,
Monte Carlo Simulation
Principal Component Analysis
Stress Testing, Back Testing
Extreme Value Theory

Suggested Readings:

1. R. A Jarrow and Rkadev Chatterjea. *An Introduction to Derivative Securities, Financial Markets and Risk Management*. W. W. Norton and Company, 2013.
2. S. A. Ross, R.W.Westerfield and B.D. Jordon. *Fundamentals of Corporate Finance*, McGraw Hill, 2012.
3. S. A. Ross., R.W.Westerfield and J.Jaffe. *Corporate Finance*, McGraw Hill, 2008.
4. R.A. Brealey and S.C. Myers. *Principles of Corporate Finance*. McGraw Hill, 2007.
5. J.C. Francis. *Investments: Management and Analysis*, McGraw Hill, 1991.
6. J. C. Hull. *Options, Futures and Other Derivatives*, Pearson Education, 2014.
7. M.D. Levy. *International Finance*, McGraw Hill, Inc, 2009.
8. Cheol S. Eun, and Bruce G. Resnick. *International Financial Management* , McGraw Hill Publishing Company Ltd, 2014.
8. Thomas S. Y. Ho and Sang Bin Lee. *Oxford Guide to Financial Modeling*. Oxford University Press, 2004.
9. C. Gourieroux and J. Jasiak. *Financial Econometrics*, New Age International Publishers, 2001.

**Course No. PG/Eco-45: Economics of Social Sectors
(40 lectures)**

At least **three** topics of the following will be covered

1. Social Development and Deprivation
 - a. Economics of Education and Health
 - b. Human Development and Deprivation - different indices and their components: Human Development: evolution and conceptual foundation –methodology for building the Human Development Index (HDI)- other related measures: Human Poverty Index (HPA), Gender Related Development Index (GDI), Gender Empowerment Measure (GEM) associated problems of measurement, components of different development indices: outcome indices and , process indices
2. Demography and Development
3. Cost Benefit Analysis and Project Appraisal (5): Planning and Financing for Human Development, setting the priorities- allocation of social expenditure (social priority ratio, human expenditure ratio etc.): Some case studies
4. Interaction between human and physical infrastructure (including power, nonconventional energy, railways, roads, communication, community and forests conservation, irrigation, local self governance etc.)

Suggested Readings:

1. Sabina Alkire. *Valuing Freedoms- Sen's Capability Approach and Poverty Reduction*, Indian Edition, Oxford University Press, New Delhi, 2002.
2. P. Bardhan and C. Udry. *Population Chapter (Section IV), Development Microeconomics*, OUP, 1999.
3. Nancy Birdsall. *Economic Approaches to Population Growth* in H. Chenery and T.N. Srinivasan(eds.) *Handbook of Development Economics*, Volume-I, Elsevier Science Pubs. B.V., 1988.

4. C. L. Dinniwidly and F. J. Teal. *Principles of Cost-Benefit Analysis for Developing Countries*, CUP, 1996.
5. N. Homedes. *The Disability Adjusted Life Years(DALYs)- Definition, Measurement and Potential Use*, Human Capital Development Working Papers, 16128, 1996.
6. Human Development Reports, Technical Notes: UNDP-various issues
7. Michael Hurd and Arie Kapteyn. *Health, Wealth and the Role of Institutions*, The Journal of Human Resources, 38(2), 2003.
8. *India Development Report*, IGIDR
9. *India Infrastructure Report*, OUP
10. *India-Social Development Report*, Council for Social Development, OUP-Variou Issues
11. W.W. McMahon. *Education and Growth in East Asia*, Economics of Education Review, 17(2), 1998.
12. *National and State Human Development Reports*, Various Issues
13. T. Paul Schultz. *Education Investment and Returns*, in H. Chenery and T.N. Srinivasan (eds.) *Handbook of Development Economics*, Volume-I, Elsevier Science Pubs. B.V., 1988.
14. *UNIDO: Guidelines for Project Evaluation*, United Nations, 1972.

Course No. PG/Eco-46: Environmental Economics (40 lectures)

1. Economy, Ecology and Environment
2. Externality and Market Failure
3. Correction with Command and Control
4. Pigovian Tax in General Equilibrium
5. Coase Bargaining
6. Tradable Pollution Permits, Ambient Charge, Refund Deposit System
7. Non Market Valuation, TEV, Household Production Function, Travel Coast Method, Hedonic Pricing
8. Random Utility model and Contingent valuation method
9. Trade and Environment: Two way causation

Suggested Readings:

1. N. Hanley, J. Shogren, Ben White. *Environmental Economics-In Theory and Practice*, Palgrave Macmillan, 2007
2. C.D. Kolstad. *Environmental Economics*, OUP, 2010.
3. Tom Tietenberg and Lynn Lewis. *Environmental and Natural Resource Economics*, 8th Edition, Pearson, 2008.
4. B. Copeland and S. Taylor, Trade, Growth and the Environment, Journal of Economic Literature. (NBER WP 2003), 2004.

Journal Articles and Book Chapters

1. D.S. Brookshire et.al. *Valuing Public Goods; A Comparison of Survey and Hedonic Approaches*, American Economic Review, 72, pp. 165-177, 1982.
2. W. Beckerman. *Sustainable development': is it a useful concept?*, Environmental Values, 3(3), pp. 191-209, 1994.
3. R.H. Coase, *The Problem of Social Cost*, Journal of Law and Economics, 3, pp. 1-44, 1960.

4. Peter A Diamond and Jerry A. Hausman. *Is Some Number Better Than No Number?*, Journal of Economic Perspectives: 8(4) : 45-64, 1994.
5. P. Ekins. *Sustainable development* in E.A. Page and J. Proops (eds) *Environmental Thought*, Cheltenham: Edward Elgar, pp. 144-172, 2002.
6. Michael W. Hanemann. *Valuing the Environment through Contingent Valuation*, Journal of Economic Perspectives: 8(14): 19-43, 1994.
7. A.M. McGrathland and W. E. Oates. *Marketable Permits for the Prevention of Environmental Deterioration*, Journal of Environmental Economics and Management, 12(3), pp.207-228, 1985.
8. Paul R. Portney. *The Contingent Valuation Debate. Why Economists should care?*, Journal of Economic Perspectives: 8(4): 8-17, 1994.

Course No. PG/Eco-47: Economics of Corruption (40 lectures)

The course covers

1. Theory and empirics of costs and benefits of corruption
2. Corruption in hierarchies and bureaucracies
3. Design of incentives and organizations
4. Relation between competition and corruption.

Suggested Readings

1. S. Rose-Ackerman. *Corruption and Government: Causes, Consequences and Reform*, Cambridge University Press, 1999.
2. A. Misra (ed). *Economics of Corruption*, Oxford University Press, 2005.
3. Various Papers from Journals.

Course No PG/Eco-48: International Economics-III: Money, BOP and Exchange Rate

This course will cover issues in open economy macroeconomics, capital mobility, alternative theories and macro-econometric modeling of exchange rate, exchange rate pass-through, and relation between money, prices and exchange rate, currency crises, monetary unions and optimum currency areas.

For this course prerequisite is International Economics I.

Following topics will be covered in 45 lectures. The allocation of total number of 45 lectures is to be decided upon by the concerned teacher in each semester.

1. Inter –temporal Trade, factor flows and Current Account: Representative Agent and Overlapping Generation models
2. Theories of Exchange Rate and Balance of Payments
3. Monetary and fiscal policies with capital mobility: Mundell –Flemming analysis
4. Purchasing Power Parity and exchange rate pass-through
5. Money, Prices and the Exchange Rate
6. Portfolio Choice, Risk Premia, Capital Mobility and Exchange Rate; Portfolio Management and Macroeconomic Equilibrium

7. Open Economy Macroeconometric Models, Econometric Models of Exchange Rate and Current Account

Suggested Readings:

1. M. Obstfeld and K. Rogoff. *Foundations of International Macroeconomics*, MIT Press, 1996.
2. P. Krugman and M. Obstfeld. *International Economics: Theory and Policy*, Pearson Education, Indian Edition, 2000.
3. P. Krugman, *Currency and Crises*, MIT Press, 2000.
4. R. C. Feenstra, and A. M. Taylor. *International Economics*, New York: Worth Publishers, 2008.
5. F. L. Rivera-Batiz and L. A. Rivera-Batiz. *International Finance and Open Economy Macroeconomics*, 2nd Edition, New Jersey: Prentice Hall Publishers, 1994.

Course No. PG/Eco-49: Advanced Econometrics III

(To take Advanced Econometrics III students have to take Advanced Econometrics II)

Any three topics from the following, totaling 45 lectures.

1. **Quantile regression** (5lectures)
2. **Generalized linear models** (10lectures)
3. **Structural Estimation (Dynamic discrete choice etc.)**(30 lectures)
4. **Data Envelopment Analysis (15 lectures)**
5. **Applied Production Analysis (15 lectures)**
6. **Applied Demand Analysis (15 lectures)**
7. **Computable General Equilibrium Models** (30 lectures)

References :

1. J.W. Wooldridge. *Econometric Analysis of Cross section and Panel Data*, MIT Press, 2010.
2. A. Collin Cameron and P.K.Trevedi. *Micro Econometric Methods and Applications*, Cambridge University Press, 2005.
3. W. H. Green. *Econometric Analysis*, Pearson Education, 2003.
4. R. Davidson and J.G.Mackinnon. *Econometric Theory and Methods*, Cambridge University Press, 2004.
5. R. Chambers. *Applied Production Analysis*, Cambridge University Press, 1988.
6. S.C. Ray. *Data Envelopment Analysis*, Cambridge University Press, 2004.
7. Angus Deaton. *Understanding Consumption*, Clarendon Press, Oxford, 1994.
8. Tom Hertel. *Global Trade Analysis: Modeling and Applications*, Cambridge University Press, 1997.

Course No. PG/Eco-50: Public Economics-II

1. Tax Evasion
2. Social Security and Pension
3. Topics in Urban Economics (*any four*)

Origin of Cities, Modeling Urban Spatial Structure, Land Use Controls, Housing, Provision of Local Public Goods

References:

1. J. Hindriks and G. Myles. *Intermediate Public Economics*, MIT Press, 2nd Edition, 2013.
2. B. Salanie. *Economics of Taxation*, MIT Press, 2003.
3. G. Myles. *Public Economics*, Cambridge University Press, 1995.
4. A. Hillman. *Public Finance and Public Policy: Responsibilities and Limitations of Government*, Cambridge University Press, 2nd Edition, 2009.
5. Mirrlees Review: *Tax by Design*, Oxford University Press, 2009.
6. J. Brueckner. *Lectures on Urban Economics*, MIT Press, 2011.
7. Papers from various journals and various volumes of Handbook of Public Economics

Course No PG/Eco-51: The Economics of Networks

Overview

Human interactions are mostly embedded in social settings and an analysis of the structure of relationships within these settings (or networks as they are called) is of considerable importance to understand how people are likely to behave and what the possible outcomes of such interactions are. The objective of this course is to study network structures and analyze the implications of different network structures on the outcomes of various interactions (economic, social and political) that take place within these structures. Along the way the following questions will be addressed

- (1) What are networks? Why are they important?
- (2) How do networks form?
- (3) How does the structure of a network influence behaviour of individuals in it?
- (4) Which networks are socially desirable? What are the conditions under which only the socially desirable networks form? Are there interventions which ensure the formation of desirable networks?
- (5) How does behaviour of networked individuals influence the network structure?

The primary focus of the course will be on the theory of networks but several real world examples will be discussed to motivate and illustrate the theory. The theory would then be applied to answer some important questions related to trade and bargaining; labour markets; financial markets; industrial organization; information diffusion, aggregation and learning; social capital, social norms, informal insurance etc.

Outline

- (1) Introduction
- (2) Representing and Measuring Networks
- (3) Empirical Background on Social and Economic Networks
- (4) Random Graph-Based Models of Networks
- (5) Growing Random Networks
- (6) Strategic Network Formation
- (7) Diffusion through Networks
- (8) Learning and Networks
- (9) Decisions, Behavior, and Games on Networks
- (10) Networked Markets
- (11) Game-Theoretic Modeling of Network Formation
- (12) Allocation Rules, Networks, and Cooperative Games
- (13) Observing and Measuring Social Interaction

Readings

Books.

- (1) M.O. Jackson. *Social and Economic Networks*, Princeton University Press, 2008.
- (2) M. E. J. Newman. *Networks: An Introduction*. Oxford: Oxford University Press, 2010.
- (3) David Easley and Jon Kleinberg. *Networks, Crowds, and Markets*, Cambridge Books, Cambridge University Press, 2010.
- (4) Oz Shy. *The Economics of Network Industries*, Cambridge University Press, 2001.

Papers.

- (1) Daron Acemoglu, Asuman Ozdaglar and Ali ParandehGheibi. *Spread of (mis) information in social networks*, Games and Economic Behavior 70, no. 2: 194-227, 2010.
- (2) Venkatesh Bala and Sanjeev Goyal. *Learning from neighbours*, The Review of Economic Studies 65, no. 3: 595-621, 1998.
- (3) Venkatesh Bala and Sanjeev Goyal. *A noncooperative model of network formation*, Econometrica 68, no. 5: 1181-1229, 2000.

- (4) Venkatesh Bala and Sanjeev Goyal. *Conformism and diversity under social learning*, Economic Theory 17, no. 1: 101-120, 2001.
- (5) Abhijit Banerjee and Drew Fudenberg. *Word-of-mouth learning*, Games and Economic Behavior 46, no. 1: 1-22, 2004.
- (6) Yann Bramoullé and Rachel Kranton. *Public goods in networks*, Journal of Economic Theory 135, no. 1: 478-494, 2007.
- (7) Antoni Calv-Armengol. *Job contact networks*, Journal of Economic Theory 115, no. 1: 191-206, 2004.
- (8) Antoni Calv-Armengol and Matthew O. Jackson. *The effects of social networks on employment and inequality*. The American Economic Review 94, no. 3: 426-454, 2004.
- (9) Sergio Currarini, Matthew O. Jackson and Paolo Pin. *An economic model of friendship: Homophily, minorities, and segregation*, Econometrica 77, no. 4: 1003-1045, 2009.
- (10) Taiji Furusawa and Hideo Konishi. *Free trade networks*, Journal of International Economics 72, no. 2: 310-335, 2007.
- (11) Andrea Galeotti, Sanjeev Goyal, Matthew O. Jackson, Fernando Vega-Redondo, and Leet Yariv. *Network games*, The Review of Economic Studies 77, no. 1,(2010): 218-244.
- (12) E Glaeser, Sacerdote B, Scheinkman J. *Crime and social interactions*, Quarterly Journal of Economics, 111: 507 – 48, 1996
- (13) Sanjeev Goyal and Fernando Vega-Redondo. *Network formation and social coordination*, Games and Economic Behavior 50, no. 2: 178-207, 2005.
- (14) Sanjeev Goyal, Marco J. Van Der Leij, and Jos Luis MoragaGonzlez. *Economics: An Emerging Small World*, Journal of Political Economy 114, no. 2: 403-412, 2006.
- (15) M. Granovetter . *The strength of weak ties*. Am. J. Sociol. 78: 1360 – 80, 1973.
- (16) Mark Granovetter. *Economic action and social structure: the problem of embeddedness*, American Journal of Sociology: 481-510, 1985.
- (17) Z. Griliches. *Hybrid Corn: An Exploration in the Economics of Technological Change*, Econometrica 25(4):501–522, 1957.
- (18) YM. Ioannides and L. Datcher Loury. *Job information networks, neighborhood effects and inequality*, Journal of Economic Literature 424: 1056 – 93, 2004.
- (19) Matthew O. Jackson and Alison Watts. *The evolution of social and economic networks*, Journal of Economic Theory 106, no. 2: 265-295, 2002.
- (20) Matthew O. Jackson and Asher Wolinsky. *A Strategic Model of Social and Economic Networks*, Journal of Economic Theory 71, no. 1: 44-74, 1996.

- (21) Rachel E. Kranton and Deborah F. Minehart. *A Theory of Buyer-Seller Networks*, The American Economic Review 91, no. 3: 485-508, 2001.
- (22) Stephen Morris. *Contagion*, The Review of Economic Studies 67, no. 1: 57-78, 2000.
- (23) Kaivan Munshi. *Networks in the Modern Economy: Mexican Migrants in the US Labor Market*, The Quarterly Journal of Economics 118, no. 2: 549-599, 2003.
- (24) C.A. Myers and G.P. Shultz, *The Dynamics of a Labor Market*, New York: Prentice Hall, 1951.
- (25) M.E.J. Newman. *Scientific Collaboration Networks. I. Network construction and Fundamental Results*, Physical Review. E 64, 016131, 2001.
- (26) J.F. Padgett and C.K. Ansell. *Robust Action and the Rise of the Medici, 1400–1434*, American Journal of Sociology 98:1259–1319, 1993.
- (27) AJ Rees and GP Shultz. *Workers in an Urban Labor Market*, Chicago: University of Chicago Press, 1970.
- (28) B. Uzzi. *The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: the Network Effect*, American Sociological Review 61: 674 98, 1996.
- (29) Alison Watts. *Formation of Segregated and Integrated Groups*, International Journal of Game Theory 35, no. 4: 505-519, 2007.
- (30) H. Peyton Young. *The Evolution of Conventions*, Econometrica: Journal of the Econometric Society: 57-84, 1993.
- (31) H. Peyton Young. *Innovation Diffusion in Heterogeneous Populations: Contagion, Social Influence, and Social Learning*, The American Economic Review 99, no. 5: 1899-1924, 2009.
- (32) G. Weisbuch, A. Kirman, and D. Herreiner. *Market Organization*, *Economica* 110:411–436, 2000.

Evaluation

The final grade will be based on Internal Assessments and an End Semester examination.

M.Phil Course in Economics

- Core courses: 150 marks
 - Optional Courses: 100 marks
 - Dissertation: 100 marks
 - Three compulsory courses will be offered in Semester I
 - In Semester II each students will two courses from a menu of optional courses, .
- which is given below. Some of these courses may not be offered in a particular semester and this will be announced at the beginning of Semester II.

Semester			
I	Advances in Microeconomics M.Phil/ECO: 1.11	Advances in Macroeconomics M.Phil/ECO: 1.12	Research Methodology in Empirical Economics M.Phil/ECO: 1.13
II	Optional Paper I	Optional Paper II	
III and IV	Dissertation writing and submission		

Menu of Optional Papers
M.Phil/ECO:2.21 Health Economics
M.Phil/ECO:2.22 Energy Economics
M.Phil/ECO:2.23 Economics of Climate Change
M.Phil/ECO:2.24 International Economics
M.Phil/ECO:2.25 Financial Economics
M.Phil/ECO:2.26 Advanced Environmental Economics
M.Phil/ ECO: 2.27 New Political Economics
M.Phil/ ECO:2.28 Economics of Corruption
M.Phil/ECO:2.29 Experimental Economics

M.Phil/ECO:2.30 Input-Output Analysis
M.Phil/ECO:2.31 Rural Economics
M.Phil/ECO:2.32 The Theory of Industrial Organisation
M.Phil/ECO:2.33 Development Economics
M.Phil/ECO:2.34 West Bengal Economy

Semester I

(This will run simultaneously with Ph.D. course work)

Paper I : Advances in Micro Economic Theory (50 marks)

Paper II : Advances in Macro Economics (50 marks)

Paper III: Research Methodology in Empirical Economics (50marks)

M.Phil/ECO: 1.11 Advances in Microeconomic Theory

The one-semester course will have two parts. In the first part, advances in methodology and technique in *any one core field* from a menu will be taught. The second part of the course will cover applications of such methodology and technique in any one/two relevant sub-fields. These applications will be primarily based on frontier research papers in the chosen sub-field, and may be partly taught and partly self studied. *Presentations of research papers self-studied by the students may be encouraged.*

Part I: Advances in Methods and Techniques in Microeconomic Theory

Any one core field will be offered from the following menu:

- a. Games and Information
- b. General Equilibrium Theory
- c. Social Choice Theory

Part II: Applications of Advances in Methods and Techniques in Sub-fields

Frontier research papers on *any one/two* sub-fields from the following menu may be offered:

a. Applications of Games and Behaviour:

- i) Contract theory
- ii) Auctions
- iii) Bargaining
- iv) Mechanism design
- v) Cooperative games

b. Applications of General Equilibrium Theory

- i) Incomplete Markets
- ii) International Trade

c. Applications of Social Choice Theory

- i) Normative basis of development, poverty and inequality indices
- ii) Implementation Theory
- iii) Law and Economics

Relevant sub-fields, in addition to the above-mentioned ones, may be chosen by the course instructor *before* the course commences in a particular academic session.

A proposed marks division and assessment method

- Part II (the applications of methods and techniques in relevant sub-field) should be at least 50% and at most 70% of the course (and of the total marks of 50) as the instructor(s) may decide.
- At least one internal assessment should be held on topics covered in Part I and Part II of the course.
- Internal assessment in the form of presentations of research papers self-studied by the students (on applications) may be encouraged.
- Qualifying or end-semester examination may be based only on Part II of the course.

Suggested Readings for Core Fields:

1. D. Fudenberg and J. Tirole. *Game Theory*, Cambridge, Mass.: MIT Press, 1991.
2. M.J. Osborne and A. Rubinstein. *A Course in Game Theory*, Cambridge, Mass.: MIT Press, 1994.
3. A. Mas-Colell, M.D. Whinston and J. R. Green. *Microeconomic Theory*, New York: Oxford University Press, 1995.
4. A. Sen. *Individual Choice and Social Welfare*, San Francisco: Holden Day, 1970.

The course instructor(s) will provide an exhaustive list of suggested readings for the subfields offered by him/her in a particular academic session at the beginning of the course.

M.Phil/ECO: 1.12 Advances in Macroeconomics

In the course, ‘Advances in Macroeconomics’, designed for the Ph.D-M.Phil programme of the Economics Department of Jadavpur University, any one of the following topics will be taught. The topic chosen will be divided into two parts. In the first part, some of the recent seminal contributions in the area will be taught. In the second part, some papers containing extensions and applications of the frameworks developed in the papers taught will be given to the students and they will have to study these papers themselves. Their understanding will be assessed by the teachers concerned the way they think best. The major areas and the subareas suggested are merely indicative. The teachers are at liberty to use their own discretion and teach an area of their own choice, which may not be in the list specified below.

1. Development Macroeconomics

Inter-linkage between the Real and Financial Sectors
 International capital mobility and economic crisis
 Issues in fiscal and monetary policies
 Unemployment, inequality and poverty

2. Modern Theories of Growth and Distribution

Advances in the theories of endogenous growth
 Growth, inequality and poverty traps
 Keynesian theories of growth and distribution

3. Theories of Economic Fluctuations

New Keynesian Theories, Quantitative Business Cycles, Financial Accelerator
Theories of Real Business Cycles
Theories of Equilibrium Unemployment

4. International Macroeconomics

Theories of exchange rate and balance of payments
Economics of currency crises and contagion
New Economic Geography

M.Phil/ECO: 1.13 Research Methodology in Empirical Economics

This Course will be divided into two groups.

Group A : Methodology for primary data collection and designing of questionnaire

Group B : Data Analysis

Group C : Quantitative Models : This group will mainly be computer based laboratory teaching. Any two Quantitative Model/Technique from the following list will be offered:

- **Advanced Time series Analysis**
- **Panel Data Analysis**
- **Stochastic Frontier Model**
- **Computable General Equilibrium Model**
- **Data Envelopment Analysis**
- **Design of Experiments**

References :

- 1.M.N.Murthy(1967): *Sampling Theory and Methods*, Statistical Publishing Society, Kolkata
2. W. Enders(2004) : *Applied Econometric Time Series*, Wiley
3. Badi Baltagi (2004): *Econometric Analysis of Panel Data*, Wiley
4. M.W.Woolrich *Econometric Analysis of Cross Section and Panel Data*
- 5.. S.C.Kumbhakar and C.A.K.Lovell(2000) : *Stochastic Frontier Analysis*, Cambridge University Press
- 6.. S.C.Ray (2004) *Data Envelopment Analysis : Theory and Techniques for Operation Research*, Cambridge University Press

Second Semester

Optional Courses:

M.Phil/ECO: 2.21 Health Economics

- a) Introduction to Health Science. Health Economics- multi-disciplinary approaches.
- b) Concept of Health and Health studies; Significance and role of population or demographic variable, some important demographic concepts like mortality rates, birth rate, age at marriage, life expectancy etc.
- c) Morbidity, Diseases, Causes of death, Reproductive health and Child care.
- d) Health Infrastructure, Preventive, Environment, Social awareness, Curative.
- e) Health care financing: Expenditure, Insurance and Effectiveness.

f) Healthcare and Hospital management: Hospital management- public, private and differential and role of NGO in developing creation. Health –care information system and methodology of Health economic research.

g) Health policy in developing economics with special reference to India

M.Phil/ECO:2.22 Energy Economics

Any four topics to be taught in detail:

- a) Depletable Energy Resource
- b) Non Depletable Energy Resource
- c) Energy Demand Analysis
- d) Energy Security
- e) Energy Pricing
- f) Energy Management
- g) Energy policy: Cross Country Experiences

M.Phil/ECO:2.23 Economics of Climate Change

- a) Long lives gases, Stock pollution and Global common.
- b) Managing Global Common
- c) Issues on rate of discount
- d) Market instruments: Carbon prices, emission trading
- e) International negotiations, JI, CDM, others
- f) Financing Climate mitigation and adaptation

M.Phil/ECO:2.24 International Economics

- a) Trade and Labour markets in Developing Countries (country specific models of wage-inequality & employment)
- b) Trade, Environment and Regulation.
- c) Political Economy of Trade Policies.
- d) Money, Exchange rate & Prices (BOP Crisis-speculative attack, PPP puzzle, exchange rate pass through; capital flight).
- e) Advanced Topics.

M.Phil/ECO:2.25 Financial Economics

Any 2/3 Topics from the following will be taught

- a) Advanced Portfolio Theory- Multifactor CAPM, International CAPM, Arbitrage Pricing Theory.
- b) i) Financial Planning and Short term Financial Decisions- Working Capital Management- Credit Management- Cash management
- ii) Intermediate and Long term Financing : Long term Debt, Term Loans and Leases
- c) Valuation of options- Applications of Options Pricing Theory- Options and Corporate Finance.
- d) International Financial Markets: Forward Exchange , Currency Multinational Banking- International Dimension of Cash Management.
- e) International Portfolio Management- Equity Financing, Bond Financing, Bank Financing.

f) Behavioural Finance

M.Phil/ECO:2.26 Advanced Environmental Economics

- a) Ecological Cycles/Laws of Thermo-Dynamics-Gala Hypothesis,Porties Hypothesis
- b) Welfare Economics- Compensating & Equivalent variation- WPT vs WTA: Why Differ. Household Production Function
- c) Policy Instruments: Pigovian taxes (Angmes Sandmo), Tradable Pollution Permits (EPS vs APS)- Grand fathering – case studies- Kyoto Protocol
- d) Environmental Valuation: Travel Cost Method- Industrial & Zonal, Hedonic Pricing, CVM- Single bound, double bound, Choice Experiments. Random utility Model
- e) Problems of trans- boundary commons, Coasian solution. Shapley values.
- f) Issues in sustainable Development.

M.Phil/ ECO: 2.27 New Political Economy

The course aims to provide students with an overview of New Political Economy. Specially, the course provides an introduction to the theoretical models, empirical methodology and substantive findings in this area. The following topics are covered:

- a) Models of voter turnout
- b) Models of targeted spending by governments
- c) Basic partisan model and partisan influence on policy
- d) Legislative bargaining
- e) Basic agency models
- f) Empirical strategies and findings.

References:

- i) A. Drazen. *Political Economy in Macroeconomics*, Princeton; Princeton University Press, 2000.
- ii) T. Persson and G. Tabellini. *Political Economics: Explaining Economic Policy*. Cambridge: MIT Press, 2000.

M.Phil/ ECO: 2.28 Economics of Corruption

- a) Theory and Empirics of Costs and Benefits of Corruption
- b) Corruption in Hierarchies and Bureaucracies
- c) Design of Incentives and Organizations
- d) Relation between Competition and Corruption

References:

- i) S. Rose-Ackerman. *Corruption and Government: Causes, Consequences and Reform*, Cambridge University Press (1999)
- ii) A. Misra (ed.). *Economics of Corruption*, Oxford University Press, 2005.

M.Phil/ECO: 2.29 Experimental Economics

- a) Introduction : History , Experimental Methodology , Advantages and Limitation
- b) Decisions and Games: Nash- related experiments, EU and lotteries

- c) Bargaining and Auctions: Unstructured and structured, Winner's Curse
- d) Public Goods and Externalities : Voluntary Contributions
- e) Voting and vote behavior: Decisions by vote
- f) Asymmetric Information: Lemons, Reputation and signaling
- g) Economic behavior and Experimental Methods : Design of Experiments

Suggested Readings:

- i) C. R. Plott and V. L. Smith. *Handbook of Experimental Economics*, North Holland, 2008.
- ii) D. D. Davis and C. A. Holt, *Experimental Economics*, Princeton University Press, 1993.

M.Phil/ECO: 2.30 Input-Output Analysis

- a) Input-Output tables and relation to national account.
- b) Problems of classification and aggregation, Treatment of secondary product.
- c) Structural analysis and co-efficient stability.
- d) Structural changes: Updating and projection of coefficients.
- e) Dynamic Input-output models- prices and quantities, stability and lag Structures.
- f) Applications of input-output analysis
- g) CGE Models.

M.Phil/ECO: 2.31 Rural Economics

1. Agriculture and Rural Development
2. Rural Credit Market
3. Economics of Microfinance (Individual Liability and Joint Liability Micro Credit Contract, ROSCA Model, How to Measure Impact of a Programme among the participants?)
4. Rural Labour Market (both farm and non-farm employment), Minimum Wage Norms and Other Types of Social Security Norms for the rural informal workers. Importance of National Rural Employment Guarantee Programme.
5. Interlinked Contract in Rural Labour Market: Both Theoretical and Empirical Aspects; Credit-Labour Interlinked Contract and Tenancy Labour Interlinked Contract
6. Rural Poverty and Vulnerability
7. Rural Economics of West Bengal (Land Reform, Rural Credit Market, Credit-Labour and Tenancy- Labour Interlinked Contract , Performance of Microfinance Programme)

Suggested Readings:

1. Steven Haggblade, Peter B.R. Hazal and Thomas Reardon (ed.). *Transforming the Rural Nonfarm Economy: Opportunities and Threats in the Developing World*, Oxford University Press, 2009.
2. Gopal Kadekodi and Brinda Viswanathan (ed.). *Agricultural Development, Rural Institutions, and Economic Policy*, Oxford University Press, 2009.
3. Beatriz Armendariz, Beatriz Armendariz de Aghion and Jonathan Morduch. *The Economics of Microfinance*, PHI, 2005.
4. Dilip Mukherjee and Debraj Ray (ed.). *Readings in the Theory of Economic Development*, Oxford University Press, 2000.

M.Phil/ECO: 2.32 The Theory of Industrial Organisation

Course Description

This is a course in industrial organization, the study of firms in markets. This field analyzes the acquisition and use of market power by firms, strategic interactions among firms, and the role of government competition policy. We will approach this subject from both theoretical and applied perspectives.

The topics (A selected sub set will be covered):

- a) Theory of a firm
- b) Consumer Surplus and Public Welfare
- c) Price Discrimination and Bundling.
- d) Market structure, Entry and Exit
- e) Industrial concentration
- f) Collusion
- g) Issues in Corporate Governance
- h) Mergers and Acquisitions.
- i) Horizontal Mergers and Acquisitions
- j) Vertical Mergers
- k) Product Differentiation: Location Models and Differentiated Goods, Increasing Returns to Scale, and Monopolistic Competition
- l) Other aspects of Non-price Competition
- m) Industrial Agglomeration
- n) Economics of Innovations
- o) Imperfect Competition and Macroeconomics
- p) Theory of Regulation
- q) Empirical Issues

Suggested Readings:

1. K. Basu. *Lectures in Industrial Organisation Theory*, Basil Blackwell Oxford, 1994.
2. S.P. Chakrabarty. *Issues in Industrial Economics*, Avebury Publishing, 1995.
3. J. Tirole. *The Theory of Industrial Organization*, The MIT Press, 1988.
4. H. Varian. *Microeconomic Analysis*, W.W. Norton & Company, 1992.
5. O. Shy. *Industrial Organization*, The MIT Press, 1995.
6. S. Martin. *Advanced Industrial Economics*, Blackwell, 1993.
7. A. Hay and D.J. Morris. *Industrial Economics and Organization: Theory and Evidence*, Oxford University Press, 1991.
8. *Hand Book of Industrial Organisation*. Three Volumes.
These will be supplemented by selected Journal articles.

M.Phil/ECO: 2.33 Development Economics

- a) Economics of Institutions
- b) Informal Institutions and Social Networks
- c) Issues in Microfinance
- d) Standard of Living
- e) Current debate about globalization and economic development
- f) Impact of International trade on economic welfare and growth of the developing countries

- g) Modern interpretation of Bhagwati's immiserising growth model
- h) Neo- Classical (Findlay), Neo-Ricardian (Emmanuel-Bacha) and Structural Models(Taylor) of the interrelation of Term of Trade movement, employment and growth of a stylized developing country
- i) Recent trade theories (Krugman and Helpman-Grossman) which use the recent developments in the literature of innovations, product cycle and development.
- j) Theoretical modeling on issues like Technology Transfer and FDI

Suggested Readings:

- i) A.K.Sen. *The Standard of Living*, Cambridge University Press, 1987.
- ii) Debraj Ray. *Development Economics*, Princeton University Press, 1998.
- iii) Kaushik Basu. *Analytical Development Economics*, The MIT Press, 1997.
- iv) Arghiri Emmanuel. *Unequal Exchange*

M.Phil/ECO: 2.34 West Bengal Economy

- a) Objective of studying Regional Economics.
- b) Overall Economic Characteristics of West Bengal
- c) Growth Scenario: The State Domestic Product and its Components, 1970-2000.
- d) Problems in Agricultural Sector: Institutional Reforms, Technical Change, Agricultural Finance and Marketing.
- e) Industrialization: Formal versus informal, large versus small scale.
- f) Employment Scenario for the last three decades.
- g) Problems of Service sector: Governmental and private sector.
- h) Decentralization: Institutional (like Panchayats) and financial (like municipal and Panchayats)

Suggested Readings:

- i) V.K. Ramachandran and M Swaminathan (eds.). *Financial Liberalization and Rural Credit in India*, Tulika Book, 2005,
- ii) Dilip Mukherjee and Debraj Roy (eds.). *Readings in the Theory of Economic Development*, Oxford University Press, 2005.
- iii) B.A. de Aghion and J. Morduch. *The Economics of Micro Finance*, Prentice-Hall of India, 2007.
- iv) Ajitava Raychaudhuri and Tuhin Das (eds.). *West Bengal Economy*, Delhi, Allied Publishers, 2005.

Ph.D. (Economics) Course Work

- This is a one-semester course
- Three core courses will be offered each carrying 50 marks

Semester			
I	Advances in Microeconomics Ph.D./ECO: 11	Advances in Macroeconomics Ph.D./ECO: 12	Research Methodology in Empirical Economics Ph.D./ECO: 13
II	Optional Paper I	Optional Paper II	

Semester I

(This will run simultaneously with M.Phil. course work)

Paper I : Advances in Micro Economic Theory (50 marks)

Paper II : Advances in Macro Economics (50 marks)

Paper III: Research Methodology in Empirical Economics (50marks)

Ph.D./ECO: 11 Advances in Microeconomic Theory

The one-semester course will have two parts. In the first part, advances in methodology and technique in *any one core field* from a menu will be taught. The second part of the course will cover applications of such methodology and technique in any one/two relevant sub-fields. These applications will be primarily based on frontier research papers in the chosen sub-field, and may be partly taught and partly self studied. *Presentations of research papers self-studied by the students may be encouraged.*

Part I: Advances in Methods and Techniques in Microeconomic Theory

Any one core field will be offered from the following menu:

- a. Games and Information
- b. General Equilibrium Theory
- c. Social Choice Theory

Part II: Applications of Advances in Methods and Techniques in Sub-fields

Frontier research papers on *any one/two* sub-fields from the following menu may be offered:

- a. Applications of Games and Behaviour:
 - i) Contract theory
 - ii) Auctions
 - iii) Bargaining
 - iv) Mechanism design
 - v) Cooperative games
- b. Applications of General Equilibrium Theory
 - i) Incomplete Markets

- ii) International Trade
- c. Applications of Social Choice Theory
 - i) Normative basis of development, poverty and inequality indices
 - ii) Implementation Theory
 - iii) Law and Economics

Relevant sub-fields, in addition to the above-mentioned ones, may be chosen by the course instructor *before* the course commences in a particular academic session.

A proposed marks division and assessment method

- Part II (the applications of methods and techniques in relevant sub-field) should be at least 50% and at most 70% of the course (and of the total marks of 50) as the instructor(s) may decide.
- At least one internal assessment should be held on topics covered in Part I and Part II of the course.
- Internal assessment in the form of presentations of research papers self-studied by the students (on applications) may be encouraged.
- Qualifying or end-semester examination may be based only on Part II of the course.

Suggested Readings for Core Fields:

1. D. Fudenberg and J. Tirole. *Game Theory*, Cambridge, Mass.: MIT Press, 1991.
2. M.J. Osborne and A. Rubinstein. *A Course in Game Theory*, Cambridge, Mass.:MIT Press, 1994.
3. A. Mas-Collel, M.D. Whinston and J. R. Green. *Microeconomic Theory*, New York: Oxford University Press, 1995.
4. A. Sen. *Individual Choice and Social Welfare*, San Fransisco: Holden Day, 1970.

The course instructor(s) will provide an exhaustive list of suggested readings for the subfields offered by him/her in a particular academic session at the beginning of the course.

Ph.D./ECO:12 Advances in Macroeconomics

In the course, 'Advances in Macroeconomics', designed for the Ph.D-M.Phil programme of the Economics Department of Jadavpur University, any one of the following topics will be taught. The topic chosen will be divided into two parts. In the first part, some of the recent seminal contributions in the area will be taught. In the second part, some papers containing extensions and applications of the frameworks developed in the papers taught will be given to the students and they will have to study these papers themselves. Their understanding will be assessed by the teachers concerned the way they think best.

The major areas and the subareas suggested are merely indicative. The teachers are at liberty to use their own discretion and teach an area of their own choice, which may not be in the list specified below.

1. Development Macroeconomics

Inter-linkage between the Real and Financial Sectors
 International capital mobility and economic crisis
 Issues in fiscal and monetary policies
 Unemployment, inequality and poverty

2. Modern Theories of Growth and Distribution

Advances in the theories of endogenous growth

Growth, inequality and poverty traps

Keynesian theories of growth and distribution

3. Theories of Economic Fluctuations

New Keynesian Theories, Quantitative Business Cycles, Financial Accelerator

Theories of Real Business Cycles

Theories of Equilibrium Unemployment

4. International Macroeconomics

Theories of exchange rate and balance of payments

Economics of currency crises and contagion

New Economic Geography

Ph.D./ECO:13 Research Methodology in Empirical Economics

This Course will be divided into two groups.

Group A: Methodology for primary data collection and designing of questionnaire

Group B: Data Analysis

Group C : Quantitative Models : This group will mainly be computer based laboratory teaching. Any two Quantitative Model/Technique from the following list will be offered:

- **Advanced Time series Analysis**
- **Panel Data Analysis**
- **Stochastic Frontier Model**
- **Computable General Equilibrium Model**
- **Data Envelopment Analysis**
- **Design of Experiments**

References :

1. M.N.Murthy. *Sampling Theory and Methods*, Statistical Publishing Society, Kolkata, 1967.
 2. W. Enders. *Applied Econometric Time Series*, Wiley, 2004.
 3. Badi Baltagi. *Econometric Analysis of Panel Data*, Wiley, 2004.
 4. J. M. Wooldridge. *Econometric Analysis of Cross Section and Panel Data*, The MIT Press, 2010.
 5. S.C.Kumbhakar and C.A.K.Lovell. *Stochastic Frontier Analysis*, Cambridge, 2000.
 6. S.C.Ray. *Data Envelopment Analysis : Theory and Techniques for Operation Research*, Cambridge University Press, 2004
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