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. Majority of the faculty have traveled 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.

The department’s faculty members 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 Model 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 programs, 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 neighboring 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 three 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 2011-12.

About the Syllabus

In this new revised syllabus the Department changes the total marks for B.A (Honours) to 1100, but keeps the total marks for M.A unchanged at 900 and M.Phil and Ph.D. qualifying at 150 each. The main philosophy behind whole design of the syllabus is to meet the emerging need of the students to enable them to better adapt to the changing socio-political-economic environment. Introduction of two Principles courses constitutes a major change in the B.A (Honours). For many young undergraduates, economics is an incoherent combination of models, statistical techniques and descriptive stories about the Indian economy. The purpose of these Principles courses is to provide a perspective that will enable the students to see how the courses they take in the subsequent semesters fit into a coherent whole, like a jigsaw puzzle. A strong mathematical background is a pre-requisite for studying Economics at Jadavpur University. For this purpose, a compulsory non-credit course for entering undergraduates to economics honours programme is introduced. It is a Review course to help students brush up their high school mathematics and seamlessly move onto both sequence of formal mathematics courses at college level and getting a foothold of basic mathematical tools needed for the beginners of economics honours courses. At the Bachelor’s level all courses are compulsory but at the Master’s level three is a lot of flexibility and the students can choose from a large menu of optional courses.
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<tr>
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Undergraduate Programme: BA (Honours) in Economics

Revised Syllabus 2011

- **Course Structure**
  
  Honours (Economics) 1100 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
  
  - A non-credit compulsory course of 30-35 lectures on **Mathematics Review for Economics Beginners** will be offered by the department for its Honours students. This is a Review course to help students brush up their high school mathematics.

- **Sequencing of Courses**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>I</td>
<td>Principles of Economics I*</td>
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<td></td>
<td>UG/Eco-11</td>
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<td></td>
<td>Principles of Economics II</td>
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<td>UG/Eco-12</td>
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<td>Statistics I</td>
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<td>UG/Eco-13</td>
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<td>Mathematics Review for Economics</td>
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<td>Beginners; Mathematics-I</td>
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<td>II</td>
<td>Microeconomics-I</td>
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<td>Statistics II</td>
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<td>Mathematical Economics-I</td>
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<td>Microeconomics-II</td>
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<td>Mathematical Economics-II</td>
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<td>Macroeconomics-I</td>
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<td>IV</td>
<td>International Trade-I</td>
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<td>Macroeconomics-II</td>
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<td>Public Economics</td>
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<td>Classical Political Economy</td>
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<td>UG/Eco -52</td>
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<td>Financial Economics</td>
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<td>UG/Eco-53</td>
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<td>Applied Economics</td>
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<td>UG/Eco -54</td>
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<td>VI</td>
<td>Resource and Environmental</td>
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<td>Economics</td>
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<td>UG/Eco-61</td>
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<td>International Trade II</td>
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<td>UG/Eco -62</td>
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<td>Indian Economic Development</td>
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<td>UG/Eco-63</td>
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<td>Project*</td>
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<td>UG/Eco -64</td>
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- The Project will be in the nature of group project with each group being supervised by one teacher. The group division, project topic selection and the project work will commence in Semester V. The project reports are to be submitted by all groups towards the end of the Semester VI.
FIRST YEAR SEMESTER I

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

Course Description:
The objective of this 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 the intuitive platform for what students will learn in the courses that follow. For many young undergraduates, economics is an incoherent combination of models, statistical techniques and descriptive stories about the Indian economy. 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, elementary algebra and trigonometry, elementary differential and integral calculus.
Examinations: Mainly problem oriented.

Total Number of Lectures: 44 + Tutorials + Problems

Course Description:

1. What do microeconomists think about, and how do they go about trying to answer the questions they ask. Paradigms in Economics. The cost Benefit approach to decisions, Rationality and Self Interest, the concept of Marginal Analysis, Positive and Normative questions, Microeconomics and Macroeconomics. (4)


out a consumer’s indifference map in a two good world. Selection of the optimum bundle. Comparative statics: price changes, income changes and derivation of the demand curve. Aggregating individual demand curves to get market demand curves. (8)

4. Applications of Rational Choice Demand theories to answer policy questions. (2)

Supplementary required reading. Will not be taught in class. A. Explaining tastes, the importance of altruism and non-egoistic behavior (RHF ch.7). B. Cognitive limitations and consumer behavior (RHF ch.8).

5. Production. Input output relationships and the production function. Total, average, marginal product curves. Short run and long run production. Returns to scale. (Note: Mainly diagrammatic analysis, with mathematically precise examples using the Cobb-Douglas production function). (5)

6. Costs. Variable costs, fixed costs and sunk costs. Simple isoquant diagrams to derive the cost minimizing input combinations. Total variable cost, Total cost. Average variable cost, Average fixed cost, Average cost, Marginal cost. Short run and long run cost curves. (Note: will not use the envelope theorem) (4)


Text Book:

Supporting textbook:
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 Payment 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:

Supplementary Readings and data sources:
2. Economic Survey, GoI, Various years
3. RBI Report on Currency and Finance
4. RBI Bulletin
5. RBI Handbook of Statistics of Indian Economy
   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:

Mathematics Review for Economics Beginners

(Non-Credit Compulsory Course)

The study of economics, as it has evolved over the last fifty, or more, years, requires a fairly deep understanding of symbolic logic and mathematics. Students often leave high school without a proper understanding of the methods of logical inference.
At the high school level, the emphasis is on computational methods. Students are taught formulae and their applications. There is little time available for developing a strong intuitive grasp of the material taught. Further, students are not taught the fundamental algebraic and topological foundations upon which the formulae they learn by rote are based. For economists a strong intuitive and formal grasp of the underlying mathematical structures is essential.

This compulsory non-credit course for entering undergraduates to economics honours programme, is a Review course to help students brush up their high school mathematics and seamlessly move onto both sequence of formal mathematics courses at ED level and getting a foothold of basic mathematical tools needed for the beginners of economics honours courses. The emphasis will be on developing an intuitive understanding of some of the topics they have studied in school, and on introducing them, at a very elementary level, to the mathematical foundations of what they have learnt in school. The redesigned mathematics ED courses will develop these further at a much more rigorous analytical level. We believe that this Review course is essential because the analytical jump between the high school mathematics courses and the redesigned ED mathematics courses is substantial that many of the entering First Year undergraduates may find it difficult to cope with the intellectual requirements of the latter (ED course) without this course. At the same time, a less rigorous set of mathematics ED courses seriously handicaps the students in their Economics Honours level courses.

This review course will be held in the first 6 weeks of Semester I and will require around 34 lectures. Knowledge of topics covered in this course, which would constitute an essential input into students’ comprehension of the material in credit based courses, will be assumed by instructors of those courses.

Topics
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. **Simultaneous Linear Systems and Related Applications of Matrix Algebra** (5 lectures)
6. **Other Topics:** Permutations and Combinations; Various types of series (arithmetic, geometric, logarithmic, exponential, Taylor’s and McLaurin’s); Brief review of trigonometric functions and associated curves (7 lectures)

**Suggested Readings:**


**FIRST YEAR SEMESTER II**

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

Total Number of Lectures: 40+ 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.
6. **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:**


**Course No. UG/Eco 22: UG Statistics II**

Total Number of Lectures: 44+ **Tutorials + Problems**

1. **Probability and Distribution (10 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. Expectations of a random variable.
   h. Transformations of variables: discrete and continuous types.
   i. Extensions of the change of variable techniques.

2. **Multivariate Distributions (6 lectures)**
   (a) Distribution of two random variables.
   (b) Continuous distributions and Expectations.
   (c) The correlation coefficient.
   (d) Independent Random variables.

3. **Some special Distributions: (10 lectures)**
   Uniform distribution; Binomial and related Distributions; Poisson, Normal and Bivariate Normal distributions; Beta, Chi-Square, t and F distributions.

4. **Distributions of functions of Random variables (5 lectures)**
   (a) Sampling Theory.
   (b) Distributions of sample mean and sample variance.
5. Limiting Distributions (5 lectures)
   (a) Convergence in Distribution.
   (b) Convergence in probability.
   (c) Central limit theorem.

6. Introduction to statistical Inference (8 Lectures)
   (a) Point Estimation.
   (b) Confidence Intervals for means.
   (c) Confidence Interval for difference of means
   (d) Test of statistical hypothesis
   (e) Chi-square test

Suggested Readings:


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

Total Number of Lectures: 40+ Tutorials + Problems

1. Concept of Optimization (4)
   Free and constrained optimization; Examples of constrained optimization from consumer and producers theories; Static and dynamic optimization problems.

2. Classical Optimization (10)
   First Order condition for optimum; Second Order Condition and sufficiency requirement; Weistrass’s Theorem; Local and Global Optima and Local-Global Theorem; Constraint qualification and Kuhn Tucker condition. Lagrangean Technique for optimization.

3. Linear Programming and Duality (6)
   Basic concepts and solution methods; Duality theorem.

4. Duality Theory (20)
   Maximum (and Minimum) Value Functions; Envelope Theorem; Shadow prices and interpretation of Lagrange multipliers. (4)
Duality in Consumer Theory: Expenditure function and its properties; Shepherd’s Lemma; Indirect Utility Function; Roy’s Identity; Slutsky equation and decomposition of price effect; Properties of Demand functions. Work-leisure choice; savings function. (12)

Producer’s Theory: Wong-Viner Theorem; Properties of cost functions. (4)

Suggested Readings:

3. Dorfman, Samuelson and Solow, Linear Programming and Economic Analysis.

SECOND YEAR SEMESTER III

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

Total Number of Lectures: 40+ Tutorials + Problems

1. **Monopoly (7)**
   Sources of monopoly; Simple monopoly pricing; natural monopoly; price-discrimination; durable good monopolist; advertising.

2. **Monopolistic competition and other non-competitive markets (5)**
   Chamberlinian competition; Sweezy and Kinked demand analysis; Dominant firm with a competitive fringe.

3. **Oligopoly and strategic behaviour of firms (24)**
   a) Non-cooperative static games – solution concepts (iterated elimination of strictly dominated strategies; pure and mixed strategy Nash equilibrium; properties of Nash equilibria in terms of Prisoner’s Dilemma, Battle of Sexes and Matching Pennies games.
   b) Non-cooperative dynamic games of complete information – sequential move games; perfect information and backward induction solution; imperfect information and sub-game perfect equilibrium; repeated games and Folk theorem (without proof).
   c) Oligopoly theories – Cournot and Bertrand models as pure strategy Nash equilibria; Stackelberg duopoly and price leadership models as backward induction solution; repeated games and collusive oligopoly.
   d) Introductory analysis of entry deterrence
   e) Adverse selection and moral hazard: Lemon’s problem; insurance (hidden action); salesman’s problem (hidden information). (No formal model will be taught)
4. **Factor Market and Wages: Revisited (4)**

Monopsony and wages; Wage determination under unionized labour; Bilateral monopoly and bargaining.

**Suggested Readings:**
2. Oz Shy, Theory of Industrial Organization (MIT Press)

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**Course No. UG/Eco-32: General Equilibrium and Welfare Economics**

Total Number of Lectures: **40 lectures + Tutorials + Problems**

1. **Introductory analysis (4)**
   
   Partial equilibrium vs. General Equilibrium techniques; Inter-relationship amongst markets; characterization of competitive general equilibrium: Walras’ Law and its implications.

2. **Exchange Economy, consumption allocation and Pareto set (12)**
   
   Exchange and competitive allocation of goods among individuals; offer curve and stability of competitive allocation; Pareto optimal allocation and Pareto set; Core allocation (only diagrammatic illustration); Scitovskian social indifference curves, compensation principle and Pareto comparability.

3. **A two-sector production economy (12)**
   
   Efficient resource allocation; Production possibility frontier and its properties; Pareto efficient production; Algebraic derivation of basic properties of a production economy: concavity of PPF and supply relationship; output and price magnification effects.

4. **Welfare Analysis (12)**
   
   Welfare property of competitive equilibrium; First Fundamental Theorem; Externalities and theory of distortion; optimal intervention to attain Pareto optimality; Coase theorem; Public good and market failure; Second Fundamental theorem (statement and illustration); Social welfare functions and Pareto criterion: Hicks-Kaldor compensation tests; Arrow Impossibility Theorem (statement and illustration only).

**Suggested Readings:**
1. Mas-collel, Whinston and Green (Only graphical analysis)
2. Anjan Mukherjee, Walrasian and Non-Walrasian General Equilibrium,
Course No UG/Eco – 33: Mathematical Economics II

Total Number of Lectures: **45 lectures + Tutorials + Problems**

1. **Concave Programming:** algebraic and geometric exposition. (10)

2. **Simultaneous Equation Systems:** algebraic and geometric exposition (15)
   Linear and non-linear simultaneous systems. Eigen Values, Eigenvectors and Jacobean Transformations.

3. **Dynamical Methods:** algebraic and geometric exposition. (20)

   Single equation non linear difference equation systems. Introduction to chaotic dynamics: Periodicity and the importance of parameter values.

   Simultaneous non-linear dynamical systems, movement over time, stability and phase diagrams (2-by-2 case).

   Example: Linearization around equilibrium values and stability analysis of three good non-linear Walrasian General Equation systems.

**Suggested Readings:**


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 (9 lectures)
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 (6 lectures)
3. IS-LM Model- Equilibrium, stability and comparative-statics, especially effects of monetary and fiscal policies (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. (3 lectures)

Suggested Readings
SECOND YEAR SEMESTER IV

Course No. UG/Eco 41: International Trade I

Total Number of Lectures: 40 lectures + Tutorials + Problems

1. Basics of Trade (2)

2. Gains from Trade (GFT) Theorem (5)
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 (3)
Offer curves: derivation; properties, related elasticities; Equilibrium TOT and static (local) stability

4. Neoclassical Trade Models (14)
Tecnology & Trade: Ricardian model (4)
(Rote of demand; double-factoral ToT; many-country model) 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 HaS theorem under price definition; FPE theorem and sources of its disruption: nOII traded good. Factor immobility, factor intensity reversal. Complete specialization,Immiserizing growth)

5. Theory of Trade Restriction: (8)
Partial equilibrium analysis: dead-weight losses of tariff, quota and VER General equilibrium analysis of Tariff: TOT effect and Lerner Case: Lerner’s Symmetry;optimum tariff and retaliation ; domestic price effect: Metzler Paradox; Effective. Rate of protection

6. Globalization, WTO and the Developing Countries With special reference to India (8)
Developing Countries in the Globalization era; TRIPPS and GATS; India’s foreign trade before and during theWTOregime; Trade Reforms in India; competitiveness of Indian industries.

Suggested Readings:

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 Macro-economics (4 lectures) - Isolated barter economy and inter-temporal choice
   - Basic Market-clearing Model
4. Consumption Function (5 lectures)
   - 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
7. Money multiplier analysis and monetary policy (8 lectures)
   - 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)
9. Business Cycle (3 lectures)
   - Hicks-Samuelson Multiplier accelerator model

Suggested Readings:

5. Hicks - A Theory of Trade cycle (chapter on outline)
8. Errol D’Souza, 2009, Macroeconomics, Pearson Education (New Delhi),

**Course No. UG/Eco 43: Econometrics**

Total Number of Lectures: **40 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. K-variable model (8 Lectures)
4. Violation of assumptions and simple least-squares methods in two variable linear regression models: autocorrelation, heteroscedasticity, test of autocorrelation and heteroscedasticity, multicolinearity problem, consequences and testing (8 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)

**Suggested Readings**


**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 center 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 economies:

2.1 Dual economics structure, open and disguised unemployment and migration:
Lewis Model-extension by 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:

THIRD YEAR SEMESTER V

Course No.: UG/Eco-51: Public Economics

Total Number of Lectures: **42 lectures + Tutorials + Problems**

1. The scope of the government (2)
2. Externalities: overview; price vs. quantity instruments, tradable pollution permits (3)
3. Pure public goods: overview; Lindahl equilibrium, voluntary contribution, voting equilibrium (collective choice and median-voter theorem), mechanisms for demand revelation (10)
4. Impure public goods: Club goods, local public goods (3)
5. Antitrust and competition policies (5)
6. Ability to pay approach of taxation: tax functions and their properties (1)
7. Incidence of commodity taxation: excise tax vs. value added tax - forward and backward shifting (3)
8. Incidence of income tax in a partial equilibrium framework: labor supply and savings (4)
9. Fiscal federalism (5)
10. Macro-economic effect of fiscal adjustments in Keynesian and classical systems - built-in flexibility - classical theory of public debt (4)
11. Theory of optimum taxation: introduction (2)

Suggested Readings:

4. Due and Friedlander - Public Finance
5. Stiglitz - Economics of Public sector
7. Sandmo: Public Economics of the Environment, OUP, 2000
10. Johansen: Public Economics
Course No. UG/Eco 52: Classical Political Economy

Total Number of Lectures: 42 lectures + Tutorials + Problems

1. **Introduction to Classical Political Economy** (2 Lectures)
   Mercantilism, Bullionism, Physiocracy

2. **Adam Smith**
   a. Division of labour (WN: Ch 1-3)
   b. Money (WN: Ch 4)
   c. Real and nominal Price- Component Parts-Natural and Market Prices (WN: Ch 5-7)
   d. Wage and profits (WN: Ch 8,9)
   e. Rent in Smith (Brief Outline only) (WN: Ch 11, Part I, II)

3. **David Ricardo**
   a. Value
   b. Rent and Rent of Mine
   c. Natural and Market Price
   d. Wage and profit (Principles Ch 1-6)

4. **Karl Marx**
   a. Marxian Methodology- Dialectical and historical Materialism (Sweezy Ch. 1)
   b. Quantitative Value Problem – Use and Exchange Value – Labour – Abstract Labour- Commodity Fetish (Sweezy Ch. 2)
   c. Surplus Value- Labour and Labour Power- Components of Value- Rate of Surplus Value- Organic Composition of Capital- Rate of profit (Sweezy Ch. 4)
   d. Accumulation and the reserve army- Simple reproduction- Description of Expanded Reproduction model (Sweezy Ch. 5)
   e. Crisis – Falling tendency of rate of profit-Realization crisis- (Sweezy Ch. 9,10)

**Suggested Readings:**

Ricardo, David, 1876, Principles of Political Economy and Taxation. 1973 reprint.
Course No. UG/Eco 53: Financial Economics

Total Number of Lectures: 42 lectures + Tutorials + Problems

1. Evolution of limited liability companies; alternative sources of fund for a 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. (6)

2. Concept of present discounted value and its uses in finance (8)
   a. Time value of money and opportunity cost of capital
   b. Investment decisions based on the concept of present value
   c. Basics of bond valuation
   d. Basics of stock valuation

3. Financial statement analysis: (12)
   a. Basic accounting concepts,
   b. How to read balance sheets, profit and loss accounts and cash flow statements.
   c. Ratio analysis

4. 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

5. Financial derivatives (6)
   a. Various forms of derivatives (Forward contract, futures contract, options and swaps).
   b. Functioning of derivative markets

6. 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. The entire discussion is done with examples from India.

Suggested Readings:
This will be supplemented by papers and reports mainly from RBI website.

**Course No. UG/Eco 54: Applied Economics**

Total Number of Lectures: 40 lectures + Tutorials + Problems

This course will be different from other courses as it visualised as fully computer lab based teaching course. 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 course curriculum. 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. 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 needs to follow in any primary data based research study.

**A. Essential steps in Primary data collection (10 Lectures)**

Problem selection, designing of questionnaire, sample design, 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, standard deviation, 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.
• Testing of hypothesis.

C. Application of Econometrics (16 Lectures)
Linear regression model and test for linear restriction on parameters test of heteroscedasticity, autocorrelation, multicolinearity, application of dummy variable models.

Suggested Readings:

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.

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: Hanley. N, Shogren J and White B, CUP (1999), Ch. 8, 9, 10, 14

3. Externality and Market failure (4)
Pollution as Externality, Market failure; Optimal Externality, Alternative Definitions of Pollution, Types of Externality, Identifying the Polluters, Optimal level of pollution.


4. **Property Rights and Coase Theorem (4)**

Property rights, Potential for market bargains in externality, Criticisms of the Coase Theorem; Problem of commons.

Reference: Pearce and Turner- Economics of Natural Resources and the Environment, 1990, chapters 5

4. **Taxation and Optimal Pollution (5)**

The Optimal Pigovian Tax (intuitively and graphically), Pollution Charges and Property Rights, Pollution Charges and Abatement Cost, Pigovian Taxes and Imperfect Competition, Charges as a Low-Cost Solutions to Standard Setting, Why are Pollution taxes not Widespread?

Reference: Pearce and Turner- Economics of Natural Resources and the Environment, 1990, chapter 6

5. **Environmental Standards, Taxes and Subsidies (4)**

The Inefficiency of Standard-Setting, Taxes Versus Standards, Pollution Reduction Subsidies


6. **Marketable Pollution permits (4)**

Theory of Marketable Permits, The advantages of Marketable Permits, Types of Permit Systems, Permit Trading in Practice

Reference: Pearce and Turner- Economics of Natural Resources and the Environment, 1990, chapter 8

7. **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: Pearce and Turner- Economics of Natural Resources and the Environment, 1990, chapters 9, 10

Suggested Readings:

a. Natural Resource Economics: Selected Papers of Allen V. Kneese (New Horizons in Environmental Economics) Chapter 1, Edward Elgar Publishing


Course No. UG/ECO-62: International Trade II: Theory of Balance of Payments and Exchange Rate

Total Number of Lectures: 40 lectures + Tutorials + Problems

1. BOP and National Income (6)
   BOP accounting; India’s BOP position before and after the crisis in 1991; national income and balance of trade in an effective demand model; foreign trade multipliers and repercussion effect.

2. Transfer Problem (4)
   Keynes-Ohlin debate; Meade’s condition; Metzler-Machlup condition.

3. Exchange Rate Regimes (12)
   International Monetary System: Gold Standards, Bretton Woods. Flexible exchange rate regime: Clean Float and automatic BOP adjustment; stability in foreign exchange market: Marshall-Lerner condition; currency...
convertibility Exchange rate interventions: Pegged rate, target zone and dirty float: BOP Adjustment through changes in foreign reserves
Exchange control and black market for foreign exchange

4. BOP adjustment under pegged exchange rate regime (13)
Expenditure-reducing policy: The Absorption approach; Expenditure switching policy: Elasticity approach (Devaluation and Marshall-Lerner condition; J-curve phenomenon); Synthesis approach: Trade balance effect of tariff, quota, export subsidy; Internal and external balance: Zones of economic unhappiness and policy mix

5. India’s BOP and exchange Rate policies in the 1990s (5)
BOP crisis and reserves position in the early 1990s; Devaluation; LERMS/partial convertibility; managed float of Rupee-Dollar rate.

Suggested Readings:
2. Rudiger Dornbusch. Open Economy Macroeconomics

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

Total Number of Lectures: 42 lectures + Tutorials + Problems

1. India's resources – natural and human: demographic features comparison between pre-independence and post-independence periods: demographic indicators as indicators of social development – inter-state perspectives. (3)
3. India's National Income – trend, growth, fluctuations and sectoral comparison and its evolution over time – Role of government sector and foreign sector accounting. (4)
4. India's Agrarian Economy – history of the British period – salient features; land-use pattern and 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 Programme, Green Revolution, Agricultural price policy, Liberalization of agricultural trade and WTO's Agreement on Agriculture. (12)
5. Industrial Growth in India: Growth, fluctuations and regional spread; structure of Indian industries – small, medium and large. Industrial policy and its
change over time; foreign collaboration, efficiency and productivity, Public vs. Private sectors. (8)

6. 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. (7)

7. Social Sector in India – educational and health attainments, including gender dimension – different indicators; inter-state variations; government initiatives and their evaluation. (4)

Suggested Readings:

2. Dutt, Ruddar and KP.M. Sundaram – Indian Economy, S. Chand & Co. 2010.
3. Economic and Political Weekly, Various issues.
4. Govt. of India – Economic Survey, various years.

Course No.: UG/ECO-64: Project

This Course aims to be a sequel of the Applied Economics Course in Semester V. 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 V. They 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.

Note:
Evaluation will be on the basis of Report (30 marks) to be prepared and submitted at the end of the final semester classes and viva voce (20 marks) which will be conducted along with end semester examination. This viva voce, in lieu of continuous assessment as
practiced in other courses, will be a tool to judge the involvement and participation of the team members besides the academic quality, independent thinking and understanding of the work done.
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 I
(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, Maclurine’s Theorem, Expansion of functions. Indeterminate forms and L’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 First Year Semester II
(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, Eigenvalues 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. Basic Linear Algebra – T. S. Blyth and E. F. Robertson; Springer.

2. Introduction to Calculus and Analysis – R. Courant and F. Jonh (Vol. I & Vol. II);
Springer.

3. Advanced Calculus – D. V. Widder; Prentice Hall.

York.

5. Ordinary and Partial Differential Equations – M. D. Raisinghania; S Chand & Co
Ltd.


