



*Mumbai School of Economics
& Public Policy
(Autonomous)*



**Students' Information
Brochure
2018-2019**

M.A. (Credit Based)

University of Mumbai

ABOUT THE MUMBAI SCHOOL

The Mumbai School of Economics and Public Policy (Autonomous), formerly the Department of Economics, University of Mumbai, is the oldest economics department in the country, having been founded in 1919 and has been making significant contributions to academics and policy making at the local and national level. The research output is noted for its innovativeness, relevance and sensitivity to current socio-economic problems.

The Mumbai School has a distinguished legacy of teachers and intellectuals such as Professors C.N. Vakil, M.L. Dantwala, D.T. Lakdawala, P.R. Brahmananda, Kanta Ranadive, T.S. Papola, P.R. Panchamukhi, V.R. Panchamukhi, Ranganath Bhardwaj, J.C. Sandesara, L.K. Deshpande, D.M. Nachane, M.J.M. Rao, among other stalwarts such as Professor V.K.R.V. Rao, Dr. Bimal Jalan, and Lord Meghnad Desai. The members of the Mumbai School of Economics are consultants to international bodies like the IMF, the World Bank, UNDP, UNICEF, UNW, ILO, and government bodies like the Planning Commission, the Reserve Bank of India, as well as to various state governments and local bodies. The private sector too has benefitted immensely from its the pool of expertise. In addition, the faculty publish widely in reputed national and international and have made seminal contributions in their respective fields. In recognition of this contribution the Planning Commission, the Reserve Bank of India, as well as private institutions and corporate organisations have instituted a total of five Chairs in the Department *viz.* the RBI Chairs in Monetary Economics and Dr. Babasaheb Ambedkar Chair in Political Economy, the Walchand Hirachand Unit in Transport Economics, the Dr. Vibhuti Shukla Unit in Urban Economics and Regional Development, Dr. D.T. Lakdawala Chair in Planning and Development.

The Mumbai School of Economics is well connected with other academic institutions and has signed several national and international memoranda of understanding. These make it possible to exchange expertise on several key areas and to have research collaborations. Academic visitors are also invited to spend time at the School and impart the benefit of their learning.

Due to its academic credentials, the Mumbai School of Economics & Public Policy has been recognised as a Centre for Advanced Studies in Economics by the University Grants Commission since 1963. The Department has been granted an Autonomous status **since** 1992 which is a further recognition of its stellar role on the Indian academic map. The Mumbai School does not believe in resting on its laurels. Regular attempts are made to make qualitative improvements in teaching and research standards. Since 2007, a M.A. programme with a choice-based credit system has been instituted in addition, to a thriving Ph.D. programme. The facilities available include a well-appointed computer laboratory where students are imparted hands-on training in the latest software; work stations; well-designed conference rooms, as well as a stimulating departmental library. However, its greatest asset is its set of competent and experienced teachers who are regularly available to the students in an atmosphere of warm cordiality.

FACULTY AND RESEARCH STAFF

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Area on Interest: Economics of Industry

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Areas of Interest: Industrial Economics,
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Manisha Karne
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Areas of Interest: Knowledge Economy, Economics of Services,
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Areas of Interest: Infrastructure Economics,
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Swati Raju
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Areas of Interest: Public Economics, Applied Econometrics,
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For further details about the faculty, including detailed CVs, please check:
http://www.mu.ac.in/arts/social_science/eco/faculty.html

RESEARCH STAFF

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The M.A. Programme

(Credit Based)

Highlights:

The highlights of the programme along with the syllabi are presented here while the detailed Rules and Regulations are presented in the next Section.

- A student enrolled for the credit-based programme must acquire a total of seventy-two credits over four semesters.
- A semester is roughly of fifteen weeks duration.
- All the courses taught in Semesters I and II are core courses (compulsory courses)
- A four-credit course is taught for 48 hours during the semester, while a two-credit course is taught for 24 hours.
- The hours allocated to the teaching of each module within a course are indicated against the respective modules.
- The core courses in Semester I are: Microeconomics I, Macroeconomics I, Mathematics for Economists and Basic Econometrics. All are four credit courses and in all sixteen credits have to be earned in Semester I.
- The core courses in Semester II are: Macroeconomics II, Microeconomics II, Development Economics and Public Economics. All are four credit courses and in all sixteen credits have to be obtained in Semester II.
- For all core courses in Semesters I and II, there is a mid-semester examination of forty marks and an end-semester examination of sixty marks. The mid-semester examination is usually held around the eighth week after the commencement of the semester.
- The remaining forty credits are to be obtained from a list of electives (32 credits) and from a dissertation component (8 credits). Students will be required to take five electives (4 credits each) in Semester III and three electives (4 credits) in Semester IV including some credits that can be obtained from taking courses offered by other departments. The list of elective courses on offer for an academic year will be announced at the beginning of each year. The dissertation component will have to be completed in Semester IV.

- The standard evaluation pattern for the elective courses consists of a mid-semester examination of forty marks and an end semester examination of sixty marks.
- The Evaluation Pattern for some elective courses differs from the standard pattern. The evaluation pattern for each course is mentioned in the top right-hand corner of the syllabus page for the respective course. Please note that the evaluation pattern for specific electives is subject to change from year to year.
- Some courses are seminar courses. Students will obtain part of the designated credits by submitting an assignment and making a presentation based on it, for which they will be graded by a group of faculty members.
- A limited number of credits can be obtained by doing courses offered by other departments. The details of such courses can be had from the Department office at the beginning of Semesters III and IV.
- The references given for each course are subject to modifications on a regular basis.
- The detailed rules for the credit-based system are given in the following Section and students are advised to familiarise themselves with them.
- The admission to the credit-based course is based on the student's performance in an entrance examination. Details can be had by visiting the School's website: http://www.mu.ac.in/arts/social_science/eco/entrexam.html

Microeconomics I (ECO 101)

When offered: Semester: I

Number of Credits: 4

Preamble: This is a one-semester course taught over 48 one-hour sessions. The course is divided into 4 modules of 12 sessions each. The method of instruction will be exclusively lectures. The objective is to introduce students to modern microeconomics in a gradual fashion, leading up to Microeconomics 2, which will be offered in the second semester. Microeconomics 1 will cover the traditional approaches to microeconomics, assuming complete markets, nonstrategic, utility-maximising individuals, as well as profit-maximising firms in a competitive market setup with symmetric, perfect and complete information.

Prerequisites: Undergraduate level microeconomics, Basics of mathematical economics.

Module 1: Utility Analysis: (12 Hours)

Choice, preference, rational choice and revealed preference, existence of the utility function-consumer's problem and the demand function, expenditure and indirect utility functions

Module 2: Demand Analysis: (12 Hours)

Demand function, income-compensated demand functions, Slutsky matrix, and their properties, measurement of efficiency, duality, measuring of welfare effects of a price change

Module 3: Production Analysis: (12 Hours)

Production: returns to scale and varying proportions, production functions (Cobb Douglas, CES) and input demand functions and their properties, costs, Derivation of SR and LR supply curve, classical model of the equilibrium of the firm, optimal size of the firm, duality in production, profit function and its properties,

Module 4: Perfect Competition, Walrasian General Equilibrium in a Pure Exchange Economy: (12 Hours)

Excess demand function and its properties, tâtonnement process and the proof of existence of general equilibrium (using Brouwer's fixed point theorem), core and equilibria, the first and the second fundamental theorem of welfare economics.

References:

Essential Readings

1. Gravelle, H. and R. Rees, Microeconomics, Pearson Edition, 2004
2. Jehle, G.A. and P.J. Reny, Advanced Microeconomic Theory, Addison-Wesley Longman, 2000
3. Mas-Colell, A., M.D. Whinston, and J. Green, Microeconomic Analysis, Oxford University Press, 2005
4. Varian, H.R., Microeconomic Analysis, WW Norton & Co., 1992

Macroeconomics I (ECO 102)

When Offered: Semester I

Number of Credits: 4

Preamble: Macroeconomics I is an introduction to aggregative relationships in an economy. Since it is the first comprehensive glimpse of the subject by a number of students, the course effectively, but rigorously, covers the syllabus of an undergraduate course. At the same time, the texts twist and turn the familiar material to open up novel possibilities. The books are only indicative and others may be used. The treatment can be graphical. However, as technical skills develop, particularly by the last module, mathematical optimization techniques might be used.

Module 1: Macroeconomic Accounting: (12 Hours)

Stocks and Flows; Output and Income; Income and Expenditure; Saving and Investment; Real and Nominal Income; The open economy

Module 2: Determination of National Income and the Price Level: (12 Hours)

The Keynesian Model: IS-LM Analysis, Fiscal and Monetary Policy

The role of expectations: The AS-AD Model; Inflation and Unemployment

Module 3: The Open Economy: (12 Hours)

Definitions and Concepts: The trade balance, Balance of Payments, Capital Mobility

Automatic adjustment, the classical approach

Fixed Exchange Rates: The IS-LM-BP model, Monetary and Fiscal Policy

Flexible Exchange Rates: The IS-LM-BP model, Monetary and Fiscal Policy

Module 4: Microfoundations of Macroeconomics: (12 Hours)

Consumption: Consumption smoothing, temporary and permanent shocks

Investment: The optimal capital stock, irreversibility and investment

The demand for money: Money, bonds, and private wealth, financial assets

Seigniorage: The optimal level of seigniorage

References:

Essential Readings

1. Carlin, W. and S. David, Macroeconomics, Oxford University Press, 2007
2. D'Souza, E., Macroeconomics, Dorling Kindersley (India) Pvt Ltd, 2012
3. Michl, T., Macroeconomic Theory, PHI Learning, 2009

Mathematics for Economists (ECO 103)

When Offered: Semester I

Number of Credits: 4

Preamble: The orientation follows Avinash Dixit's classic on the subject. Thus, working backwards from the requirements of dynamic optimization, static optimization is covered and, over the first two modules, the mathematical background required to appreciate the last two modules. The texts are illustrative and any proper subset may be used. The expectation is that the instructor will sketch/prove theorems depending on the level of the class and focus on problems drawn from the microeconomics and macroeconomics courses.

Module 1: Background I: (12 Hours)

Elements of set theory: \mathbb{R} and \mathbb{R}^n ; sequences & limits; open & closed sets; compact sets

Functions: continuity; linear functions; concave and quasi concave functions

Vectors and matrices: the determinant; quadratic forms

Module 2: Background II: (12 Hours)

The derivative: partial derivatives; implicit differentiation; total derivatives

Unconstrained and constrained optimization; concave programming

Differential Equations: stability

Module 3: Static Optimization: (12 Hours)

Integration: definite and indefinite integrals; integration by parts

The Kuhn-Tucker theorem

Module 4: Dynamic Optimization: (12 Hours)

Calculus of Variations

The Maximum Principle

Dynamic Programming

References:

Essential Readings

1. Chiang, A.C., Fundamental Methods of Mathematical Economics, McGraw-Hill, 2005
2. _____, Elements of Dynamic Optimization, McGraw-Hill, 1992
3. Simon, C.P. and B. Lawrence, Mathematics for Economists, Viva Books Pvt Ltd, 1994
4. Sydsaeter, K., P. Hammond, and S. Arne, Essential Mathematics for Economic Analysis, Pearson, 2012

Additional Readings

Binmore, K., Foundations of Analysis, Books 1 & 2, Cambridge University Press, 1980

Dixit, A., Optimization in Economic Theory, Oxford University Press, 1990

Basic Econometrics (ECO 104)

When offered: Semester ó I

Number of Credits: 4

Preamble: The course is designed to introduce students to elementary econometric methods and their applications. The teaching will emphasize a combination of theory and empirical applications.

Module 1: Linear Regression Model: (12 Hours)

Two variable model:- estimation of parameters, properties of pestimators, hypothesis testing and model validation. Extension to multiple linear regression model

Module 2: Failure of classical assumptions: (12 Hours)

Heteroskedasticity, autocorrelation and multicollinearity: implications, corrective measures, Outliers:-implication and detection, non-normality of errors and bootstrapping of confidence intervals

Module 3: Systems of equations: (12 Hours)

Endogeneity and specification issues, Structural form and reduced form models, identification, instrumental variables and two stage least squares

Module 4: Introduction to time series: (12 Hours)

Stationary and non-stationary time series, spurious regression, tests of stationarity, optimal forecasts and methods of forecast evaluation, introduction to ARIMA models

References:

Essential Readings

1. Wooldridge, J., Introductory Econometrics: A Modern Approach, Cengage Learning, 2009
2. Kennedy, P., A Guide to Econometrics, MIT Press, 2005

Microeconomics II (ECO 106)

When Offered: Semester II

Number of Credits: 4

Preamble: The course is designed to introduce students to methods of analysing strategic microeconomic behaviour in the context of asymmetric and incomplete information.

Module 1: Introduction to Game Theory (12 Hours)

Normal and extensive form games, pure and mixed strategy Nash equilibria, sequential games, backward induction and sub-game perfect Nash equilibria, Cournot model, Bertrand model, Stackleberg model.

Module 2: Economics of Information (12 Hours)

Optimal contracts under symmetric and complete information, moral hazard and optimal contract design, Bayesian games and Bayesian Nash equilibria, Adverse Selection, Signalling and Pooling equilibria.

Module 3: Industrial Organisation-1: (12 Hours)

Market power and dominant firms, non-linear pricing and price discrimination, product quality, welfare implications of monopoly.

Module 4: Industrial Organisation-II: (12 Hours)

Dynamic models of oligopoly, Product Differentiation, Address Models and Strategic Behaviour, Product Differentiation in vertically integrated firms.

References:

Essential Readings

1. Gibbons R., A Primer in Game Theory, Princeton University Press, 1992
2. Church, J.R. and R. Ware, Industrial Organisation: A Strategic Approach, McGraw Hill, 2000
3. Maco-Staedler, I. and D. Perez-Castrillo, Economics of Information and Contracts, OUP, 2001
4. Binomre, K., Game Theory: A Very Short Introduction, OUP, 2010

Macroeconomics II (ECO 107)

When Offered: Semester II

Number of Credits: 4

Preamble: Macroeconomics-II is modern macroeconomics in that it deals with the New Classical and New Keynesian frameworks. By this time, the compulsory mathematics course will have been covered and students can appreciate the techniques of dynamic optimization that underlie the course. Here too, the texts are only suggestive and others may be used.

Module 1: Imperfectly flexible prices: (12 Hours)

Price-setting under imperfect competition

Menu costs, real rigidity and neutrality

Quadratic price adjustments

Module 2: New Classical Economics: (12 Hours)

The DSGE model

Wealth Effects and the Government Budget Constraint; money/bond finance

The government budget deficit; Ricardian Equivalence

Module 3: New Keynesian Economics: (12 Hours)

Disequilibrium, multiple equilibria, hysteresis

Reconstructing the Keynesian multiplier

The NK model of inflation

Module 4: Macroeconomic Policy: (12 Hours)

Rules versus Discretion, Credibility & Reputation, Dynamic Inconsistency

Banks, Financial Intermediaries and Unconventional Monetary Policy

Inflation Targeting and Exchange Rates

References:

Essential Readings

1. Heijdra, B.J. and F. Ploeg, Foundations of Modern Macroeconomics, Oxford University Press, Oxford, 2002
2. Romer, D., Advanced Macroeconomics, McGraw-Hill, Fourth Edition, 2012
3. Wickens, M., Macroeconomic Theory and the Dynamic General Equilibrium Approach, Princeton University Press, 2011

Development Economics (ECO 108)

When Offered: Semester II

Number of Credits: 4

Preamble: The objective of the course is to introduce students to existing academic approaches that grapple with the complexity of developing countries. To that end, the syllabus presents some of the major economic ideas in development thinking, and builds on and extends the microeconomic and macroeconomic tools developed in earlier core courses, additionally incorporating alternative perspectives that merit close scrutiny.

Module 1: Concepts and measures of Growth and Development: (12 Hours)

Developments in economic thought ó History, expectations and development - Economic growth and structural change ó Capabilities, entitlements and deprivation - Inequality and growth ó Measurement of Inequality and poverty- Measurement of development - HDI, GDI, etc.- Role of market and state

Module 2: Modern theories of Growth and Distribution: (12 Hours)

Harrod-Domar Model of growth ó Solow model of growth- Approaches to technical change ó Convergence ó Endogenous growth models of Romer and Lucas-Human capital

Module 3: Microeconomics of Development: (12 Hours)

Segmentation of rural land, labour, capital and credit markets ómicrofinance- Market inter-linkages ó land markets-labour markets and householdsóCredit market-microfinance- The household model of fertility decisions- Institutions and development

Module 4: Macroeconomics of Development: (12 Hours)

Environment and development- Development and the constraint of natural resources - Environmental problems in Economic Developmentó Environment and Sustainable Development-Trade and Development ó Trade and foreign exchange óRole of international financial and trade institutions ó Structural adjustment and stabilization.

References:

Essential Readings

1. Basu, K., Analytical Development Economics, OUP, New Delhi, 1998
2. Ray, D., Development Economics, OUP, New Delhi, 2004

Additional Readings

1. Agénor, P. and P.J. Montiel, Development Macroeconomics, Princeton University Press, 1999
2. Bardhan, P. and C. Udry, Development Microeconomics, OUP, Oxford, 1999
3. Behrman, J.R. and T.N. Srinivasan, Handbook of Development Economics, Elsevier, 1995
4. Foley, D.K. and T.R. Michl, Growth and Distribution, Harvard University Press, 1999
5. Hayami, Y. Development Economics: From the Poverty to the Wealth of Nations, OUP, 2001
6. Human Development Reports (Several Years)
7. Sen, A. Commodities and Capabilities, OUP, New Delhi, 1999

Public Economics (ECO 109)

When offered: Semester II

Number of Credits: 4

Preamble: The focus of the course, which draws on Microeconomic theory, is on the development of analytical tools and their application to key issues relating to the spending, taxing and financing activities of government. References for Module 4 may change from year to year.

Module 1: Government in a Market Economy: (12 Hours)

Theorems of Welfare Economics: Implications, Lump Sum Taxes and Transfers Rationale for State Intervention: Market Failures and Externalities, Tax and Regulation, Distribution, Social Choice, Voting Rules, Arrow Impossibility Theorem

Module 2: Public Expenditure: Rationale and Evaluation: (12 Hours)

Public Goods: Pure and Local, Optimal provision, Lindahl's Voluntary Exchange Approach, Preference Revelation mechanism, Private provision of Public Goods, Merit Goods, Club Goods Evaluation of Government Expenditure: Elements of Cost-Benefit analysis

Module 3: Taxation: (12 Hours)

Basic Concepts of Tax Theory: Direct vs. Indirect Taxes, Ability to Pay, Horizontal and Vertical Equity. Commodity Taxation: Tax Rules, Optimal Commodity Taxation, Public Sector Pricing. Income Taxation: Equity and Efficiency, Taxation and Labour Supply, Optimal Income Taxation (linear and non-linear). Tax Evasion: Basic Model, Auditing and Punishment.

Module 4: Reforms and Government: (12 Hours)

Fiscal Rules: Rationale, International and Indian Experience. Decentralisation: Decentralisation Theorem. India's Federal Structure: Taxation powers, Expenditure responsibilities, Intergovernmental transfers, VAT, GST

References:

Essential Readings

1. Atkinson A.B. and J.E. Stiglitz, Lectures on Public Economics, New York: McGraw-Hill, 1980
2. Cullis J. and P. Jones, Public Finance and Public Choice, OUP, 1998
3. Hindriks J. and G.D. Myles, Intermediate Public Economics, MIT Press, 2006
4. Myles G., Public Economics, Cambridge University Press, 1995
5. Oates W., Fiscal Federalism, New York: Harcourt, Brace Jovanovich, 1972
6. Purohit M., Value Added Tax, Gayatri Publications, 2001
7. Tresch R., Public Finance: A Normative Theory, Academic Press, 1995

Transportation Economics - Theory and Practice (ECO 201)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: In this course, the tools of microeconomic analysis will be applied to the transport sector. We will build on theories and concepts developed in the microeconomics courses and we will show how extensions of the theory can deal with the idiosyncrasies of the transport sector. For example, the concept of "price" is generalized to include the value of time to the traveller. The demand for transporting freight is explained using the theory of the derived demand for an input. At the same time, the impact of modern approaches to management (logistics) would be considered. Just as the concept of "price" requires modification, we will see that "output" has many dimensions and explore the implications of this. In particular, we will examine the cost complexities exhibited in the transport sector and the need to modify pricing principles accordingly. The transport sector is very rich in terms of applications of concepts such as price discrimination and social cost benefit analysis. In addition, a study of transport economics would also involve application of microeconomics in analysis of policies, especially in relation to appropriate ways to regulate firms. The course, in general, covers the relationship between transport and the economy. Basically, the course has been designed to apply economic concepts in a practical setting and illustrate them using case studies especially chosen from the Indian context to provide important insights into the economics and management of different parts of the transport sector.

Pre-requisites: The stated prerequisites for the course are: Introduction to Microeconomics and Introduction to Macroeconomics. A reasonable background in basic Algebra and Calculus is needed. Some of the mathematics maybe reviewed in class, if required.

Module 1: Introduction: (8 Hours)

Transport as a catalyst to development; measuring the impact of transport on the economy- case studies of impacts. An overview of transportation activities in India: network and performance; issues for the future. Some basic considerations: transportation and land-use, the transport planning process

Module 2: Demand and Supply Analysis: (12 Hours)

Transport Demand: The Basic Framework- measuring the demand in a spatial and temporal setting. Traditional Four-Stage Demand Model; modern approaches to modelling demand and practical issues in demand estimation. Supply: the nature of output in transport, output and costs, economies of size, density and scope, empirical estimation of transport cost functions- the approaches and illustrations.

Module 3: Market Structure and Pricing: (12 Hours)

The spectrum of transport market structures: market power and the scope for pursuing different strategies. Pricing Principles ó First Best Rules, Ramsey Pricing ó Second Best Solution, Price Discrimination, Pricing with Stochastic Demand, Road Pricing and Congestion. Pricing in practice ó public transport fares, rail tariffs, pricing by shipping conferences and electronic road pricing schemes

Module 4: Investment Decisions: (8 Hours)

The nature of investment decisions; financial evaluation of transport investments; social cost benefit analysis: economic evaluation of transport investments. Practical issue in evaluation and case studies of road and rail projects evaluation.

Module 5: Market Regulation and Policy: (8 Hours)

Theory of Regulation, Deregulation and Privatisation in Transport. Approaches to privatisation of transport infrastructure and services and a competition policy for transport. Evolution of transport policy in India with focus on case studies regarding different modes.

References:**Essential Readings**

1. McCarthy, P. S., Transportation Economics, Massachusetts: Blackwell Publishers. 2001 (All Modules)
2. Button, K. J., Transport Economics, Second edition, London: Heinemann. 1993 (All Modules)

Additional Readings

1. Boyer, K. D., Principles of Transport Economics, Massachusetts: Addison-Wesley, 1998
2. Cole, S., Applied Transport Economics: Policy, Management and Decision Making, London: Kogan Page, 1998
3. Winston, C., Conceptual Developments in the Economics of Transportation: An Interpretive Survey, Journal of Economic Literature, Vol. XXIII (March 1985), pp.57-94

Urban Economics (ECO 202)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This course is designed as a preliminary level course. The learning objective here is to acquaint the underlying theories, propositions and issues that usually arise in studying an urban situation. The course will equip the student with the basic theoretical premises and analytical tools (borrowed from the standard Micro and Macro economics) that are used by an urban economist. The course therefore is not necessarily grounded in any particular reality (except where explicitly mentioned). However, for pedagogical purposes, explanation and illustrations will naturally come from the Indian situation. It is recommended (although not strictly mandatory) that this course be taken as a pre-requisite for any of the other electives being offered in the area of Urban Economics.

Module 1: Urban Forms: (12 Hours)

Historical evolution of urban forms—definition, rationale and modern related types (UA). Agglomeration ó productivity increases, models of optimal city size and regional dispersal. City functions and size class

Module 2: Within the City: (12 Hours)

Location of Economic Activities, Land use patterns ó classical models and modern reality, regulation land ceiling and rent control. Labour Markets—nature, informalisation. Migration, Urban poverty, Environment

Module 3: Local Public Goods and Infrastructure: (12 Hours)

Nature of Local Public Goods and Utility Pricing ó water/sanitation, health and education. Power, Housing and Transportation infrastructure. Slums and rehabilitation ó Urban infrastructure needs and finance

Module 4: Governance: (12 Hours)

Municipal governments ó sources of revenues (local taxes) and expenditure. Functions and budgets in a decentralized set up. Governance Issues ó capacity building and the role of civil society

References:

Essential Readings

1. O'Sullivan, A., Urban Economics, McGraw-Hill Irwin, 2002 (BASIC TEXT All Modules)
2. Shukla, V., Urbanization and Economic Growth, Himalaya Publishers Pvt. Ltd., Mumbai, 1996 (Modules 1, 2)
3. Bahl, R and J. Linn, Urban Public Finance in Developing Countries, OUP (WB), 1992 (Modules 3, 4)
4. Ramachandran, R., Urban Economics and Urban Systems in India, OUP, 1989 (Module 1)

International Trade: Theory and Policy (ECO 203)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This elective course, to be offered in the third semester, requires a good understanding of Microeconomics. The course aims at providing a theoretical exposition of bases, effects and the restrictions on free flow of international trade with the empirical evidence.

Module 1: Classical Trade Theory: (10 Hours)

Absolute and Comparative Advantage of Trade; Real and Opportunity Cost Approaches; Gains from Trade, Reciprocal Demand and Offer Curves; Terms of Trade. Revealed Comparative Advantage

Module 2: Neo-Classical Trade Theory: (14 Hours)

The Heckscher-Ohlin (H-O) Theory; Factor Price Equalization Theorem and Generalization to n Factors and Goods; Leontief Paradox, Rybczynski Theorem; Trade and Growth

Module 3: Modern Trade Theory: (12 Hours)

Concept of Intra-industry Trade, Imperfect Competition and Trade- The Neo-Heckscher-Ohlin Models- Favley Model, Neo-Chamberlinian Models- Krugman Model, Oligopolistic Models- Brander-Krugman Model, Reciprocal Dumping Model- Iceberg Model. Gravity Equation. Empirical work in Intra-industry Trade-Balassa Index, Grubel-Lloyd Index, Aquino Index. Trade in Services

Module 4: Trade Policy: (12 Hours).

Instruments of Trade Policy; Tariffs and Welfare, Optimum Tariff, Tariff and Real Rewards to Factors of Production, The Stolper-Samuelson Theorem, Metzler's Paradox, Theory of Customs Union, Quotas and Export Subsidies. Gains from Trade and Regional Agreements

References:

Essential Readings

1. Feenstra R. C., Advanced International Trade- Theory and Evidence, Princeton University Press, Princeton, 2004 (Modules 2, 3 and 4)
2. Grimwade Nigel, International Trade, (Second Edition), Routledge, London, 2001 (Modules 3 and 4).
3. Grubel H. G. and P. J. Lloyd, Intra-industry Trade, Macmillan, London, 1975 (Module 3)
4. Haberler G., A Survey of International Trade Theory, International Finance Section, Department of Economics, Princeton University, 1961 (Module 1)
5. Krugman P. R. and M. Obstfeld, International Economics-Theory and Policy, Addison-Wesley, Delhi, 2000 (Modules 2 and 3)
6. Salvatore D., International Economics, John Wiley and Sons, Singapore, 2002 (All Modules)
7. Södersten Bo and R. Geoffrey, International Economics, Macmillan, London, 1994 (Modules 2, 3 and 4)

Gender Economics (ECO 204)

Number of Credits: 4

Pattern of Evaluation: Non-Standard

Preamble: This elective integrates a gendered perspective into the process of economic theorizing, the attempt being to enable students to evolve a construct in the context of gendered analysis and alternatives as located in the empirical functioning of the economy. Also examined is the role of women in various economic and also extra-economic spheres, incorporating an evaluation of relevant policies as applicable in different sectors. While cross-country analysis is in-built, the focus is on Indian processes and policies located within an international perspective. Non-Standard Evaluation Pattern: The evaluation will be done through 40 marks of continuous evaluation and a 60 marks end-semester examination. The 40 marks of evaluation will consist of a mid-term examination of 20 marks (two questions to be attempted over one hour) and a project of 20 marks on Modules 3 and 4. The project topics will be announced by the 4th teaching week of the semester and the projects should be in by the 10th teaching week. All modules will carry equal weight for the three hour end-semester examination.

Module 1: Introduction to Gender Economics: (12 Hours)

Exploitation versus oppression ó Access and control over economic resources ó Patriarchy and development ó Approaches to developmental theories ó Contribution of women to national income and economies ó Indicators of development ó Gender Development Index and Gender Empowerment Measure ó Visibility of women and biases inherent in data systems ó Limitations of National Income statistics

Module 2: Conceptualisation of Work and Employment: (14 Hours)

Concept of Homo Oeconomicus ó Market and non-market economies ó Work, productivity, efficiency and skill ó Valuation of unpaid, underpaid and paid work ó Time allocation studies ó Concept of head of the household ó Occupational trends and patterns ó Organised and unorganised labour market structures ó Impact of globalisation ó Land rights and land reforms ó Women in collective bargaining ó Application and impact of sectoral labour legislation

Module 3: Demographic, Nutrition and Health Profile: (10 Hours)

Demographic structures in developed and developing economies ó Differentials in sex-ratio, mortality, morbidity, and life-expectancy ó Economic determinants of population policies ó Intra-household inequalities of access to health and nutrition ó Energy expenditure and nutritional deficiency ó Food security ó Efficiency and equity of health delivery systems

Module 4: Women in the Developmental Process: (12 Hours)

Plan approaches to gender issues ó Methods and critique of gender budget analysis ó Strategies, policies and programmes for poverty alleviation and economic empowerment ó Micro-finance, Self-Help Groups, etc. ó Gendering macroeconomic perspectives, approaches and methodologies ó Fiscal and monetary policies ó Issues of trade, investment and subsidies in the international and national context

References:

Essential Readings

1. Alexander, P. and S. Baden, Glossary on Macroeconomics from a Gender Perspective, Sussex, 2002
2. Barker, Drucilla and E. Kuiper (eds), Towards a Feminist Philosophy of Economics, Routledge, 2004
3. Blau Francine, M. Ferber, and A. Winkler, Economics of Men, Women and Work, Pearson, 2001
4. Haq, Mahabub Ul, Report on Human Development in South Asia- A Gender Question, OUP, Mumbai, 2000
5. Jacobsen, J.P., Economics of Gender, Blackwell, 2007
6. Kabeer, Naila, Reversed Realities: Gender Hierarchies in Development Thought, Kali, New Delhi, 1994
7. Krishnaraj, M., R.M. Sudarshan and A. Shariff, Gender, Population and Development, Oxford, Delhi, 1999
8. Kuiper, E., et.al. (eds), Out of the Margin, Routledge, 1998
9. Olson, P. and Z. Emami, Engendering Economics, Routledge, 2002
10. Peterson, J. and M. Lewis (eds), The Elgar Companion to Feminist Economics, Edward Elgar, 2001
11. Tinker, I., Persistent Inequalities, Oxford University Press, Oxford, 1990

Economics of Human Development (ECO 205)

Number of Credits: 4

Pattern of Evaluation: Non-Standard

Preamble: This course on the Economics of Human Development focuses on the widely- accepted global perspective of viewing development as the expansion of people's capabilities, capacities and choices. This people-centric analytical framework for designing and assessing public policy interventions has several implications at macro, meso and micro levels both nationally as well as internationally. This elective has a relatively strong applied component specifically in relation to India that is in-built into each module.

Non-Standard Evaluation Pattern: The evaluation be done through 40 marks of continuous evaluation and a 60 marks end-semester examination. The 40 marks evaluation will consist of a mid-term examination of 20 marks (two questions to be attempted over one hour) and a project of 20 marks on Modules 3 and 4. The project topics will be announced by the 4th teaching week of the semester and the projects should be in by the 10th teaching week. All modules will carry equal weight for the three hour end-semester examination.

Module 1: Concepts of Human Development: (12 Hours)

Growth and Development compared ó Perspectives on development ó Definition of human development - Basic Needs Approach ó Quality of Life Approach ó Capability Approach ó Human rights ó Millennium Development Goals

Module 2: Dimensions of Human Development: (12 Hours)

Empowerment, equity, sustainability, security, productivity and participation ó Role of freedoms in promoting human development -- Multi-dimensionality of poverty ó Concept of inclusive growth ó Role of civil society, NGOs, and people's organizations ó Obstacles to inclusive growth ó Impact of globalization

Module 3: Measurement: (12 Hours)

Need for indices - GDP ó Physical Quality of Life Index (PQLI), Disability Adjusted Life Years (DALY), Social Capability index ó Human Development Index ó Human Poverty Index ó Gender Related Development Index ó Gender Empowerment Measure

Module 4: Aspects of Human Development: (12 Hours)

Livelihoods ó Inequalities ó Gender ó Child labour ó Aging population ó Poverty alleviation - Food Security ó Environment ó Displacement ó Indigenous groups ó Migration - Education and Health ó Workers and Informal Sector -- Social Security ó Human security ó Conflict

References:

Essential Readings

1. Chelliah Raja J and R. Sudarshan (ed), *Income Poverty and Beyond: Human Development In India*, UNDP, Social Science Press, New Delhi, 1999
2. Comim F, M. Qizilbash and S. Alkire (eds), *The Capability Approach: Concepts, Measures and Applications*, Cambridge University Press, Cambridge, 2007
3. Costanza R, B. Low, E. Ostrom and James Wilson (ed), *Institutions, Ecosystems and Sustainability*, Lewis Publishers, Boca Raton, 2001
4. Dev S. Mahendra, P. Antony, V. Gayathri, and R P Mamgain, *Social and Economic Security in India*, Institute for Human Development, New Delhi, 2001
5. Fukuda-Parr S. and Shiva Kumar A K (ed), *Readings in Human Development: Concepts, Measures and Policies for a Development Paradigm*, Oxford University Press, New Delhi, 2003
6. Grinspun, A. (ed), *Choices for the Poor, Lessons from National Poverty Strategies*, UNDP, New York, 2001
7. International Labour Organization, *A Fair Globalization: Creating Opportunities for All*, World Commission on the Social Dimension of Globalization, Geneva, 2004
8. International Labour Organization: *World Employment Reports*
9. Meier G M and Stiglitz J E (eds), *Frontiers of Development Economics*, Oxford University Press, New York, 2001
10. Sen Amartya, *Development as Freedom*, Oxford University Press, New Delhi, 1999
11. Sen Amartya and Jean Dreze, *India: Economic Development and Social Opportunity*, Oxford University Press, New Delhi, 1998
12. United Nations Development Programme (UNDP), *Human Development Reports 1990-2004*, Oxford University Press, New York
13. United Nations Development Programme (UNDP) ó India, *State Human Development Reports, 2003 ó 2006*, Oxford University Press, New Delhi.

Theory & Practice of Regional Trading and Monetary Arrangements

(ECO 206)

Number of Credits: 4

Pattern of Evaluation: Standard/Non-Standard

Preamble: Regional/ preferential trading arrangements are increasingly becoming important. The course aims at studying in detail the theory underlying and the issues related to both regional trading and regional monetary arrangements. The course purports to apply econometric techniques in the form of gravity models to the study of regional arrangements. The pedagogy in the first two modules will rely on detailed study of selected chapters from the first two indicated references. Two real-world regional arrangements will be examined in detail in the last module, which may be tested, as a part of internal continuous evaluation, through a project on RTA/RCA.

Non-Standard Evaluation Pattern: The evaluation be done through 40 marks of continuous evaluation and a 60 marks end-semester examination. The 40 marks evaluation will consist of a mid-term examination of 20 marks (two questions to be attempted over one hour) and a project of 20 marks on Modules 3 and 4. The project topics will be announced by the 4th teaching week of the semester and the projects should be in by the 10th teaching week. All modules will carry equal weight for the three hour end-semester examination.

Module 1: Customs Union Theory: (16 Hours)

Levels of economic integration ó trade creation and trade diversion - economies of scale and customs union ó intra-industry trade and customs union ó customs union and terms of trade - customs union and welfare ó dynamic aspects of customs union

Module 2: Theory of Currency Areas: (8 Hours)

Currency areas ó optimum currency areas ó contributions of Mundell, McKinnon and developments thereof

Module 3: Applications of Econometric Methods in RTA analysis with special reference to Gravity Models: (12 Hours)

The concept of gravity in economic analysis ó theoretical underpinnings of gravity models ó some applications of gravity models in regional trading and monetary analysis

Module 4: Contemporary Regional Trading and Monetary Arrangements: (12 Hours)

Regionalism and multilateralism in the context of WTO ó Overview of regional trading arrangements in Asia - Any two of the following, as chosen by the course instructor, to be studied in details: SAARC and SAFTA, ASEAN & AFTA, European Union, NAFTA, regional trading arrangements in Africa, Africa-EU trade

References:

Essential Readings

1. Jagdish N. Bhagwati, Pravin Krishna and Arvind Pangariya, (eds.), Trading Blocs: Alternative Approaches to Analyzing Preferential Trading Arrangements, Cambridge, Mass. & London, England: MIT Press, 1999 (Modules 1 & 4)
2. Jacob A. Frankel, (eds.), The Regionalization of the World Economy, Chicago & London: University of Chicago Press, 1998 (Modules 3 & 4)
3. Richard Baldwin and Charles Wyplosz, The Economics of European Integration, New York: McGraw Hill, 2004 (Modules 2 & 4)

Statistical Foundations of Econometrics (ECO 207)

Number of Credits: 4

Pattern of Evaluation: Non-Standard

Preamble: This course aims to familiarize students with elements of probability and inferential statistics that form the basis of modern econometrics. This course is a bridge between what is taught in the core paper and more advanced treatments of the subject.

Evaluation Pattern: Four examinations of ten marks each, to be held after the completion of each module, followed by an end semester examination of sixty marks.

Module 1: Axiomatic Approaches to Probability: (8 Hours)

Sample spaces, sigma fields and probability measure- Probability Axioms and their Implications- Counting methods- Conditional probability, independence and exchangeability- Bayesø Theorem and its Applications

Module 2: Random Variables and Probability Distributions: (16 Hours)

The concept of a random variable- joint, marginal and conditional distributions- Moment generating function and cumulants- Independent random variables- Some discrete and continuous random variables (normal, t, chi square and F distributions mandatory)- Functions of random variables

Module 3: Introduction to Statistical Inference: (16 Hours)

Modes of Convergence- Weak and strong law of large numbers ó Central limit theorem with proof- Properties of estimators- Different Estimation methods and the properties of the associated estimators (Multiple OLS estimators mandatory)

Module 4: Hypothesis Testing Theory: (8 Hours)

UMP tests and unbiased tests- simple null versus composite hypotheses- Likelihood ratio test- Wald Test- Lagrange Multiplier Tests- Tests of restrictions in an OLS framework and their applications.

References:

Essential Readings

1. Rohatgi V., Statistical Inference, Dover, New York, 2003 (All Modules).
2. Nachane D.M, Econometrics: Theoretical Foundations and Empirical Perspectives, OUP, Delhi, 2006 (All Modules)

Economics of Agricultural Production and Rural Markets (ECO 208)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This course would be helpful to understand the various types of relationships in agriculture: factors and products, problems of instability in production, the functioning of and imperfections in credit markets, labour markets, and land markets.

Module 1: Economics of Agricultural Production, Resource Use and Instability in Agriculture: (12 Hours)

Resource and input use ó Important production relationships ó Economics of input and product substitution ó Imperfections in product and input markets in developing agriculture ó Sources of price variability and income instability ó Rationale for and types of government intervention for price support and reduction in instability ó Alternative concepts of cost of cultivation and determination of minimum support prices in India ó Role and optimum size of buffer stocks

Module 2: Rural Credit Markets: (12 Hours)

Characteristics of rural credit markets, credit fragmentation ó Organized and unorganized sectors ó Theories of informal credit markets: Lender's Risk Hypothesis, Default and collateral, Credit rationing: Default, Informational asymmetries ó Moral hazard ó Evolution of credit systems in India ó Role and Performance of Commercial Banks, Co-operative Credit Institutions, Regional Rural Banks, NABARD and Micro-credit through SHGs in India, imperfections in rural credit markets in India

Module 3: Labour Markets: (12 Hours)

Concepts of work, skill and productivity ó Methods of measurement of employment and unemployment ó Free and unfree labour ó Types of employer-employee relationships ó Determinants of wage rates ó Labour market segmentation ó Gender-based discrimination ó Biases in data sources ó Wage Differentials ó Contract Labourers in rural markets

Module 4: Land and Lease Markets: (12 Hours)

Types of farming ó Historical evolution ó Segmented property rights ó Characteristics and functioning ó Economic, extra-economic and legal restrictions ó Lease market ó Formal and informal leases ó Economics of share tenancy ó Crop-sharing practices in India ó Inequity in distribution of holdings ó Market interlocking and interlinkages ó Analysis of rural classes ó Contract Farming

References:

Essential Readings

1. Heady Earl O., Economics of Agricultural Production and Resource Use, Prentice Hall, New York, 1961 (Module 1)
2. Kahlon A.S. and D.S. Tyagi, Agricultural Price Policy in India, Allied Publishers Pvt. Ltd., New Delhi 1983 (Module 1)
3. Basu Kaushik, Agrarian Structure and Economic Underdevelopment, Harwood, Switzerland, 1990 (Modules 2, 3, 4)
4. Dantwala M.L. (Ed), Indian Agricultural Development since Independence, (Second Edition) Oxford and I.B.H. Pvt. Ltd., 1991 (Module 2)

5. Ray Debraj, Development Economics, Oxford University Press, Oxford, 2004 (Module 2)
6. Johl S.S. and Kapur T.R., Fundamentals of Farm Business Management, Kalyani Publishers, New Delhi, 1977 (Module 1)
7. Bardhan P.K, Land, Labour and Rural Poverty, Oxford University Press, New Delhi, 1984 (Module 3, 4)
8. Kapila Uma, Understanding the Problems of the Indian Economy, (Sixth Edition) Academic Foundation, New Delhi, 2005 (Modules 2, 3, 4)
9. Cheung, S.N.S., The Theory of Share Tenancy, University of Chicago Press, Chicago, 1969 (Module 4)

Economics of Labour Markets (ECO 209)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: Labour market issues are important for students of Micro, Macro, and Industrial Economics. The course sheds light on a range of new developments and a host of issues studied by generations of labour market experts. It captures the interplay of various factors in the labour market by describing demand/supply aspects, wages, employment, unemployment, the cost of labour, workers' participation and impact of new labour policies in the labour market. The course will be offered in the third semester.

Module 1: Nature of the Labour Market: (8 Hours)

Concept of labour market, Characteristics, Types, Search in labour markets, The theory of Human Capital, Investment in Human Capital, Costs and life-time benefits to education

Module 2: Micro and Macro Approaches in Labour Markets: (16 Hours)

The theory of labour demand; time period and types of markets, Industry demand for labour, Determinants of labour demand, The theory of supply, Work-leisure choice in indifference curves, Budget constraints, Utility maximization, Backward-bending labour supply curve and its applications, Classical, Neo-classical and Keynesian theory of labour markets, The inflation-unemployment trade-off, Nominal Rigidities

Module 3: Wage Issues in Labour Markets: (12 Hours)

Theories of Wages, Wages in different markets, Wage structure and components of wages, Share of wages, Distribution and Inequality of wage income, Male-female wage differentials, Inter-Sectoral wage differentials, Contract labour, Properties of contractual wages, Labour market rigidities and flexibilities, Wage and output relations in India during pre- and post-reform period

Module 4: Labour Markets in India: (12 Hours)

Linkages in labour markets, role of risk, Information and incentives, Dualism and segmentation, Labour market flexibility, Employee turnover, Migrant labour, State and labour markets, Impact of trade unions on productivity and wages, Minimum wages, Social security, Occupational safety and security, Wages and incomes policy in India, Impact of liberalization and globalisation

References:

Essential Readings

1. Bhattacharya BB and S Sakhivel, Economic Reforms and Jobless Growth in India in the 1990s, *The Indian Journal of Labour Economics*, Volume 48, No.2, 2005, pp. 243-258
1. Bhagoliwal T.N., *Economics of Labour and Industrial Relations*, Sahitya Bhawan, Agra, 1985
2. Bloom Gordon F and Northrup Herbert R, *Economics of Labour Relations*, Richard D Irwin Inc, Homewood, 1973
3. Cahuc Pierre and Andre Zylberberg, *Labor Economics*, MIT Press, 2004
4. Government of India, *Report of Second National Commission on Labour*, 2002
5. Harris-White Barbara and Sinha Anushree, *Trade Liberation and India's Informal Economy*, Oxford University Press, New Delhi, 2007
6. Sapsford David and Zafiris Tzannatos, *The Economics of the Labour Market*, Macmillan, London, 1993
7. Singh Jwitesh Kumar, *Labour Economics*, Deep and Deep Publishers, Delhi, 1998
8. Uchikawa Shuji (eds.), *Labour Market and Institutions in India 1990s and Beyond*, Manohar Publishers, New Delhi, 2003
9. Unni Jeemol and Uma Rani, *Employment and Income in the Informal Economy: A Micro Perspective*, in Renana Jhabvala, Ratna M Sundaram and Jeemol Unni (eds) *Informal Economy Centre-stage: New Structures of Employment*, Sage Publications, New Delhi, 2003.

Financial Economics (ECO 210)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: The objective of the course is to introduce students over 48 lectures to the major topics in the subject such as mean-variance portfolio theory, the capital asset pricing model, efficient markets hypothesis, pricing of bonds as also to different systems of financial markets.

Module 1: Capital Asset Pricing Model: (12 Hours)

Mean-Variance Criterion - Measuring Risk and Return for a Single Asset and for a Portfolio - Portfolio Diversification - Portfolio Efficiency Frontier, Capital Market Line, Market Portfolio, Security Market Line - Extensions of the CAPM - Performance Measures - Arbitrage Pricing Theory

Module 2: Valuation Models and Bubbles: (12 Hours)

Rational Valuation Formula - Consumption CAPM - Efficient Markets Hypothesis - Euler Equation and the Rational Valuation Formula - Intrinsic Bubbles - Noise Traders and Herding - Noise Traders and Rational Valuation Formula - Noise Traders and Contagion.

Module 3: Bond Markets: (12 Hours)

Measures of yield - Pricing of Bonds - Measures of Price Sensitivity: price value of a basis point, duration and convexity - Term Structure Models.

Module 4: Systems of Financial Markets: (12 Hours)

Spot Markets ó Contingent Claims Markets ó Arrow Securities ó Ordinary Securities Markets ó Incomplete Markets ó Financial Markets and Financial Intermediaries.

References:

1. Cuthbertson, K., Quantitative Financial Economics: Stocks, Bonds and Foreign Exchange, John Wiley and Sons, USA, 1996. (Modules 1 and 2)
2. Eichberger J. and I.R. Harper, Financial Economics, Oxford University Press, New York, 1997. (Module 4)
3. Fabozzi, F.J., Bond Markets: Analysis and Strategies, Eighth Edition, Prentice Hall, New Jersey, 2012. (Module 3)
4. Tuckman, B. and Serrat, A., Fixed Income Securities: Tools for Today's Markets, Second Edition, John Wiley and Sons, New Jersey, 2012. (Module 3)
5. Copeland T.E., J. F. Weston and K. Shastri, Financial Theory and Corporate Policy, Fourth Edition, Pearson Addison-Wesley USA, 2005. (Modules 1 and 2)
6. Fama, E. F. Efficient Capital Markets: A Review of Theory and Empirical Work, Journal of Finance, vol.25, no.2, pp. 383-423, 1970. (Module 2)

Theory of Monetary Institutions (ECO 211)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: The course is 1. constructive, that is, will exploit the open foundations of the subject to work through alternative monetary arrangements using microeconomics, and 2. relevant, in that it connects with abiding discussions on the nature of money, the role of banks, the appraisal of central banks, a world central bank, and so on.

Module 1: One-period Trade: (12 Hours)

Market mechanisms: The bid-offer market, many monies, gold and paper money: The loan market, the money rate of interest, a fractional reserve system: modelling trust, Fiat money: modelling bankruptcy, Incomplete markets: commodity money and other structures, money and liquidity: the store of value function

Module 2: Multiperiod Trade: (12 Hours)

Commodity money and credit: badly distributed money and credit, fiat money and credit: strategic market games with/without lending, Transactions and the float: financing the float, capital stock, salvage values, Expectations: strategic market games with uncertainty, Money and Transactions Costs: endogenous money, the combinatorics of exchange, brokers and dealers: middlemen, clearinghouses, and setup costs

Module 3: Banking Arrangements: (12 Hours)

An ideal banking system: a modern loanable funds theory, the bank's portfolio problem equilibrium: from the corn economy to the monetary economy, towards a general equilibrium theory of credit

Narrow Banking: Deposit Creating Institutions, Free Banking, Universal Banking

Module 4: Central Banks: (12 Hours)

Open-market operations: incentive-compatible contracts, The Lender of Last Resort function: moral hazard, Monetary policy with informal financial markets: dual economy dynamics, Monetary-Fiscal Coordination, Managing Aggregate Risk: systemic fragility and policy, A World Central Bank: The IMF?

References:

Essential Readings

1. Shubik, Martin, The Theory of Money and Financial Institutions, volumes 1& 2, Cambridge: The MIT Press, 1999
2. Stiglitz, Joseph E. and Bruce E. Greenwald, Towards a New Paradigm in Monetary Economics, Cambridge: The Cambridge University Press, 2003

Municipal Functions: Governance and Finance (Special Reference to Maharashtra) (ECO 212)

Number of Credits: 2

Pattern of Evaluation: Standard

Preamble: This course takes a critical look at the currently fashionable ‘decentralization’ and ‘governance’ in the context of the passage of 74th Constitutional Amendment. Municipal governments form the third tier of governance. There are a whole lot of functions that have been assigned to the local governments. There are however some issues that arise in this context. One of the main ones that the student will be expected to study in this course will be the state of finances of the local bodies. The related issue of level of autonomy for sub-national governments within a federal set up will also be discussed. The budgets of select municipal bodies will be discussed in detail from the perspective of ‘and using economic categories’ of an economist. The devolution from higher governments and the role of state finance commissions in this context will also be touched upon. The role of civil society, especially in the context of participatory democracy and empowerment of people, will also be studied.

Module 1: (12 Hours)

The municipal ‘acts’ of the obligatory and discretionary functions of the tax and non-tax revenues of the profile of ULBs in Maharashtra The state of municipal finance in Maharashtra of Budgets of Charters

Module 2: (12 Hours)

Decentralization of 74th Constitutional Amendment of details and critique of State Finance Commission Report of issues in governance of functions and process reengineering of capacity building of outcome and performance budgets of role of civil society

References:

Essential Readings

1. Primary (original) Sources: 74th CA; Budget Documents of MCGM, Maharashtra State Finance Commission Reports, AILSG Reports (Module I)
2. Bahl, R and J. Linn, Urban Public Finance in Developing Countries, OUP, 1992 (Module I, II)
3. Karnik, A., A. Pethe and D. Karmarkar, Approach to Designing Intergovernmental Transfers, Report for UNCHS/UNDP, Vols. I&II, 2002 (Modules I, II)

Additional Readings

1. Working papers of the Vibhooti Shukla Unit
2. Henderson, J.V. and J.F. Thisse (eds), Handbook of Urban and Regional Economics, Elsevier Science, 2006.

International Finance (ECO 213)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This elective course, to be offered in the fourth semester, requires a good understanding of Macroeconomics. This course aims at providing a theoretical exposition of different aspects of international finance and financial institutions in the context of globalization. A good understanding of International Trade and Trade Policies is desirable.

Module 1: Foreign Exchange Rates and Markets: (12 Hours)

Foreign Exchange Rates: Fixed, Flexible, Nominal, Real and Effective Exchange Rates, Purchasing Power Parity and Interest Parity. Foreign Exchange Markets: Spot, Forward, Futures and Options Currency Markets. Foreign Exchange Risk and Exposure: Exposure, Risk and Parity Relationship, Accounting Exposure versus Real Exposure, Operating Exposure, Hedging Risk and Exposure.

Module 2: Balance of Payments: (12 Hours)

Balance of Payments: Current Account Balance and Capital Account Balance, Official Reserve Transactions, Relationship between Balance of Payments and National Income Accounts. Approaches to Balance of Payments Adjustments: Elasticity, Absorption, Monetary and Portfolio-balance Approaches

Module 3: International Investment and Financing: (12 Hours)

Cash Management: Investment and Borrowing Criterion with Transaction Costs- International Dimensions of Cash Management. Portfolio Investment: International Capital Asset Pricing- Settlement of International Portfolio Investments. Capital Budgeting for Foreign Investments: Project Selection, Cash Flows, Discount Rates, Growth and Concerns about Multinationals. International Financing: Equity Financing, Bond financing, Bank financing

Module 4: International Financial Institutions: (12 Hours)

Gold Standard and Gold Exchange Standard: International Monetary Fund- International Reserves-Special Drawing Rights. Theory of Optimum Currency Areas: International Policy Co-ordination, Currency Board, International Financial and Currency Crisis. International Debt: Measures of Indebtedness-International Debt Crisis

References:

Essential Readings

1. Kenen Peter B, The International Economy, Cambridge University Press, New York, 2000 Chapters: 12, 13, 14, 15, 16, 17, 18 and 19 (Modules 2 and 4)
2. Krugman P. R. and Obstfeld M., International Economics-Theory and Policy, Addison-Wesley, Delhi, 2000 Chapters: 12, 15, 16, 20 and 22 (Modules 2 and 4)
3. Levi Maurice D., International Finance, Routledge, New York, 2005 Chapters: 2, 3, 4, And 9 to 18 (Modules 1, 2 and 3)
4. Pilbeam Keith, International Finance, Palgrave, New York, 1998 Chapters: 14 and 15. (Module 4).
5. Salvatore Dominick, International Economics, John Wiley and Sons, Singapore, 2002 Chapter: 14, (Module 1)
6. Sodersten Bo and Reed Geoffrey, International Economics, Macmillan, London, 1994 Chapters: 23, 25, 30 and 31) (Modules 2 and 4)
7. Ugur Mehmet, (edited), An Open Economy Macroeconomics Reader, Routledge, London, 2002 Chapters: 16, 17, 19, 20, 21 and 22 (Modules 2 and 4)

Time Series Econometrics (ECO 214)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: The course aims at building on the Basic Econometrics course to equip the students with econometric techniques of time series analysis. Though the approach will largely be applied, some derivations of theoretical results will be emphasized. Applications to financial econometrics at the level of Chris Brooks' Introductory Econometrics for Finance will be emphasized.

Module 1: Introduction and Single Equation ARIMA Models: (16 Hours)

Difference equations and lag operators, Data generating process, Characteristic equations, Ergodicity and Stationarity, Autocorrelation and Partial autocorrelation functions, Stationary ARMA processes, Invertibility, Box-Jenkins Approach to identification, estimation and diagnostic checking, Time series analysis in the frequency domain, Uses of spectral analysis.

Module 2: Modeling Volatility and Trends: (8 Hours)

ARCH and GARCH processes, Deterministic and Stochastic trends, Dickey-Fuller tests and extensions including testing for structural change

Module 3: Multi-equation Time Series Models: (12 Hours)

Transfer Function Models, Intervention analysis, VAR models, Impulse-response functions and forecast error variance decomposition, Cholesky and Blanchard-Quah decompositions, Structural VAR models

Module 4: Co integration and Error-Correction Models: (12 Hours)

Co integration and Common trends, Error-correction models, Engle-Granger methodology, Co integration in multivariate models, Johansen Methodology, General-to-specific modeling, topics in non-linear time series models: Threshold autoregressive models ó Estimating Regime switching models

References:

Essential Readings

1. Walter Enders, Applied Econometric Time Series, 2edition, Singapore: John Wiley & Sons, 2004
2. James D. Hamilton, Time Series Analysis, Princeton: Princeton University Press, 1994
3. Chris Brooks, Introductory Econometrics for Finance, Cambridge: Cambridge University Press, 2002
4. Dilip M. Nachane, Econometrics, New Delhi: Oxford University Press, 2006.
5. Lutkepohl, Helmut, New Introduction to Multiple Time Series Analysis, Berlin: Springer-Verlag, 2006.

Public Choice: Theory and Applications (ECO 215)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: The objective of the course is to provide an introduction to Public Choice theory. Public Choice is a relatively young sub-discipline of economics, having developed as a separate field largely since 1948. Public Choice can be defined as the application of economics to political science. The subject matter is that of political science and the methodology is that economics. In this course the students will be introduced to various issues in a direct and representative democracy framework. Various policy matters too will be discussed in the Public Choice framework. Students would also analyze policy issues a politico-economic framework via projects.

Module 1: Toolkit for Analysis & Basic Issues: (12 Hours)

What is Political Economy? The Emergence of Public Choice, A Just Social Contract: The Rawlsian Principle, Critique of Rawlsian Social Contract, Social Contract as a Constitution, The Constitution as a Utilitarian Contract

Module 2: Public Choice in a Direct Democracy & Representative Democracy: (12 Hours)

Direct Democracy: The Choice of Voting rules, Majority Rule & Positive Properties: Median Voter Theorem, Logrolling, Cycling, Simple Alternatives to Majority Rule, Representative Democracy: Two Party Competition, Bureaucracy

Module 3: Conflicting Interests: (12 Hours)

Elections and Policymaker: Vote and Popularity Functions, Partisan Cycles, Political Business/Budget Cycles Interest Groups: Group size and Group Behaviour, Special Interest Theories, Rent Seeking: Theory of Rent Seeking, Rent Seeking through Regulation and Political Process, Welfare Losses from Rent Seeking.

Module 4: Policy Issues: (12 Hours)

Government Size and Economic Growth: the Olson Hypothesis, Bureaucracy, Political Instability and Growth. Political Economy of Local Government: The Decentralization Theorem, Exit and Voice within Local Government, Tiebout Hypothesis -voting with your feet, Public Choice and Intergovernmental Grants: The Flypaper Effect, Romer-Rosenthal Model, Fiscal Illusion, the Leviathan hypothesis.

References:

Essential Readings

1. Mueller D., Public Choice III, Cambridge University Press, 2003 (Modules 1, 2, 3, 4)
2. Drazen A., Political Economy in Macroeconomics, Princeton University Press, 2000 (Modules 1, 3)
3. Cullis J. and P. Jones, Public Finance and Public Choice, Oxford University Press, 1998 (Module 4)

Data Envelopment Analysis (ECO 216)

Number of Credits: 2

Pattern of Evaluation: Standard

Preamble: The course is useful in measuring the performances of similar units. It identifies the extent of inefficiency, the causes for this inefficiency through the wastage of resources and also suggests the extent to which the performance can be improved.

Module 1: Basic Concepts of Data Envelopment Analysis (DEA): (4 Hours)

A Decision-Making Unit; Measurement of Efficiency; Frontier Analysis; illustrative exercises

Module 2: Mathematical Programming Aspects of DEA: (8 Hours)

Linear Programming; primal & dual; fractional DEA programme; output- maximization and input-minimization DEA models; illustrative exercises

Module 3: Economies of Scale: (4 Hours)

Variable and Constant Returns to Scale and DEA, Technical and scale efficiencies, Computer applications using industry data

Module 4: Extensions in DEA: (8 Hours)

Malmquist Productivity Index, Use of Regressions and sensitivity analysis in DEA. Practical applications using sectoral data

References:

Essential Readings

1. Ramanathan R, An Introduction to Data Envelopment Analysis A tool for performance measurement, Sage Publications New Delhi, 2003 (all Modules)
2. Ray Subhash, Data Envelopment Analysis Theory and Techniques for Economics and Operations Research, Cambridge University Press, UK, 2004 (all Modules)

Input Output Theory and Applications (ECO 217)

Number of Credits: 4

Pattern of Evaluation: Non Standard

Preamble: The elective is useful for both structural analysis and policy guidance in an economy. It helps in revealing the quantitative significance of various types of interdependence. This course will provide hands on computer for applications and analysis.

Evaluation Pattern: The evaluation will be done through 40 marks of continuous evaluation and a 60 marks end-semester examination. The 40 marks of evaluation will consist of a mid-term examination of 20 marks (two questions to be attempted over one hour) and a project of 20 marks on Modules 3 and 4. The project topics will be announced by the 4th teaching week of the semester and the projects should be in by the 10th teaching week. All modules will carry equal weight for the three hour end-semester examination.

Module 1: Input Output Model: (16 Hours)

Static Input Output Models -Definition, Formulation, Scope, technical coefficients, balance equations, economic interpretations, direct and indirect effects, the capital coefficient matrix.

Multiplier and Linkage analysis - Output and Income multipliers, backward and forward linkages, total linkage effect, interpretation of linkages, practical applications. Extended multiplier analysis: employment effects, distribution of income.

Module 2: Dynamic Analysis: (8 Hours)

Dynamic Input Output analysis: Dynamic Input output Models, model for planning, projection of economic growth, measurement of economic development and growth potential, use of shadow prices in a developing economy. An Introduction to basics of CGE models and SAM

Module 3: Structural Analysis: (12 Hours)

Trade Strategies: Import substitution, intensity, measurement, impact. Pattern of international trade, determinants, comparative advantage, the semi-input output method, programming approach.

Module 4: Regional Input Output Analysis: (12 Hours)

Regional Models: Single region models and multi region models, Regional Coefficients-Non-survey and partial survey methods- the RAS technique, Location quotients and related techniques

References:

Essential Readings

1. Bulmer-Thomas V (1982) *Input Output Analysis in Developing Countries Sources, Methods and Applications*, John Wiley & Sons Ltd, New York (Modules 1, 2, 3, 4)
2. Chenery H B & Clark P G (1967) *Inter Industry Economics* John Wiley & Sons Ltd, New York. (Module 1)
3. Mathur, P.N. and Bharadwaj, R (eds.) (1967) *Economic Analysis in Input Output Framework with Indian Empirical Explorations*, Input Output Research Association, Pune. (Module 2)
4. Miller R & Blair P (2009) *Input Output Analysis: Foundations and Extensions* Prentice Hall, Inc, New Jersey (Modules 1, 2, 3)
5. Pradhan B.K., Saluja M.R., Singh S.K. *Social accounting Matrix for India Concepts Construction and Application*, Sage Publications Ltd., New Delhi 2006 (Module 1, 2)

Demography: Theory and Basic Analysis (ECO 218)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: The course is designed to provide an understanding of demographic processes including an in-depth knowledge of linkages between population and economic development. It introduces major developments in demographic concepts by highlighting the sources of demographic data, fertility, mortality, migration and population projection.

Module 1: Population Science, Demography and Economic Development: (10 Hours)

Population and Economic Development, Population and Environment, Implications of Population Growth on Regional Imbalances, Population Science and Demography, Sources of Demographic Data, Malthusian Theory of Population, Theory of Demographic Transition, Age and Sex Composition of Population, Age pyramids, Ageing Population.

Module 2: Nuptiality and Fertility: (14 Hours)

Basic concepts of Nuptiality, Analysis of Marital Status Data, Singulate Mean Age at Marriage: Synthetic Cohort and Decadal Synthetic Cohort Method, Concepts and measurements of Cohort and period fertility, Relæ Method and Reverse survival method in fertility analysis, Bongaartø Proximate Determinants of Fertility, Socio-Economic Determinants of Proximate Variables, Indirect Estimation of Fertility Rates, Davisø Intermediate Variables framework of Fertility, Age Patterns of Fertility.

Module 3: Mortality: (12 Hours)

Basic concepts and analysis of Morbidity, Concepts and Measurements of Mortality, Infant and Child mortality rates, Standardisation of Mortality Rates, Life tables: Concepts, Types, Uses, Methods of construction; Differentials and Determinants of Mortality.

Module 4: Migration and Population Projections: (12 Hours)

Concepts, Patterns and Measures of Migration, Migration Theories and Models (Ravensteinø, Leeø, Wolpertø and Todaroø model), Internal and International Migration, Spatial Distribution and Urbanisation, Importance of Population Projection, Methods of Population projection: Mathematical and components methods.

References:

Essential Readings

1. Bhatt M. (2002): On the Trial of Missing Indian Females, Economic and Political Weekly, 37(51) (52):5105-518, 5244-5263.
2. Bhende AA and T. Kantikar, Principles of Population Studies, Himalaya Publishers, Mumbai, 2000
3. Bogue DJ, EE Arriagas, Douglas L. Anderson, Reading in Population Studies and Methodology, Published for United Nations Population Fund by Social Development Center, Chicago, Illinois, 1993
4. Coale, A.J., 1971, Age Patterns of Marriage, Population Studies, 25(2), pp. 193 6214
5. Henry, S. Shryock, The Methods and Materials of Demography, Vol. 1 and 2, U.S. Department of Commerce, Bureau of Census, Washington D.C. 1971, pp. 283-298 and 549 6 578

6. International Institute for Population Sciences (IIPS), National Family Health Survey, (NFHS) 1,2,3, Mumbai,1992-93; 1998-99; 2006-07
7. International Institute for Population Sciences (IIPS), Reproductive and Child Health Survey, Mumbai, 2002-04
8. Lutz, Wolfgang, Distributional Aspects of Human Fertility: A Global Comparative Study, Academic Press, 1989, New York
9. Mishra BD, An Introduction to Demography, South Asian Publishers Pvt. Ltd, New Delhi,1981
10. Mitra RG, Understanding patterns of Migration from Census 2001 Data, Population,2002
11. Stabilisation and Development, Council of Cultural Growth and Cultural Relations, Cuttack
12. Preston Samuel, Patrick Heuveline & Michel Guillot, Demography: Measuring and Modelling Population Processes, Blackwell, Cornwall, 2001
13. Sydney HC, Population Theories and Economic Interpretation, Routledge, London, 1968.

Trade Unions and Industrial Relations in India (ECO 219)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This course attempts to provide a basic conceptual understanding of the economics of trade unions and industrial relations in India. The syllabus also includes the empirical relevance of theories with suitable examples from a practical industrial relations viewpoint. Such an attempt will be strengthened to enable familiarity with relevant data along with their limitations.

Module 1: Economics of Trade Unions: (9 Hours)

Meaning, Concept, Evolution and Role of Trade Unions. Approaches to the Origin of Trade Unions. Bargaining Theory of Wages, Impact of unions on productivity and wages, Employment Security and Efficiency, Unorganised sector

Module 2: Industrial Relations: (12 Hours)

Definition and scope of industrial relations, Approaches to Industrial Relations: Macro Approaches-System Approach and Class Conflict Approach, Micro Approaches-Taylorism, Fordism and Post-Fordism, Neo-Fordism, Pluralism, Human Relations School and Organisational Behaviour Approach.

Module 3: Industrial Relations in India: (15 Hours)

Trade Unions and Workers: Industrial Sociology of workers in India, History, growth and structure of trade unions, Independent and white collar unions in India. Trade Unions and Contract Workers. Employer's Organisations: Role of managerial class in industrial relations. Industrial conflict: Forms of conflict, strikes, lockouts, absenteeism, employee turnover, causes and consequences of and trends in industrial disputes.

Module 4: Role of the State in Industrial Relations in India: (12 Hours)

Labour Policy in India: Pre and Post-Reform scenario, Impact of Globalisation- Tripartism, Labour Legislation affecting industrial relations: Statutory and Non-Statutory measures to settle industrial disputes. Workers Participation in Management. Voluntary Retirement Schemes, Social Security Measures, Unemployment Insurance. Occupational Safety and Health Management Systems. India and the ILO.

References:

Essential Readings

1. Amin, Ash (Ed.), Post-Fordism-A Reader, Blackwell, Oxford, 1994 (Module 2)
2. Government of India, Ministry of Human Resource Development, Report of Second National Commission on Labour, 2002 (Module 3, 4)
3. Hicks J.R., The Theory of Wages, Clarendon Press, Oxford, 1932 (Module 1)
4. Monappa, Arun, Industrial Relations, Tata McGraw Hill, New Delhi, 2005. (Module 4)
5. Pencavel, John, Labour Markets under Trade Unionism: Employment, Wages and Hours, Basil Blackwell, Cambridge, Massachusetts, 1991 (Module 1)
6. Ramaswamy, E.A. and Uma Ramaswamy, Industry and Labour, Oxford University Press, Bombay 1981 (Module 3)
7. Rees, Albert, The Economics of Trade Unions, University of Chicago Press, Chicago, 1973 (3rd Edition) (Module 1)
8. Roy. J. Adams (eds.), Comparative Industrial Relations, Harper Collins Academic, London, 1991. (Module 2, 4)

Financial Derivatives (ECO 220)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This is a one-semester course to be taught over 48 lectures with the objective to acquaint students with the concepts and analytics of financial derivative securities, the different derivative instruments and the pricing of derivative securities.

Module 1: Introduction to Basic Concepts: (8 Hours)

Time Value of Money ó Equities ó Commodities - Fixed Income Securities.

Module 2: Forwards, Futures and Options: (16 Hours)

Basic Concepts - Purpose of Futures Markets (price discovery and hedging) - Types of Traders and Orders in Futures Markets -Forward Rate Agreements (FRAs) - Option Positions, Margins, Bid-Ask Spread, Writing Options, Warrants and Convertibles, Exotic Options, Put-Call Parity - Straddles and Strangles, Spreads.

Module 3: Pricing of Derivative Securities: (12 Hours)

Determination of Forward and Futures Prices, Characteristics of Futures Prices, Futures Prices and Expectations, Hedging Strategies using Futures - Black-Scholes Model, Alternatives to Black-Scholes, the Greeks, Speculating and Hedging with Options - Bond Options and Pricing of Contingent Claims.

Module 4: Swaps: (12 Hours)

Comparative Advantage Principle, Swap Facilitators (Brokers and Dealers), Interest Rate and Currency Swaps and their Valuation, Other Swaps (Equity Swaps, Commodity Swaps).

References:

Essential Readings

1. Wilmott, Paul (1999): Derivatives: The Theory and Practice of Financial Engineering, John Wiley and Sons, New York
2. Hull, John C. (2006): Options, Futures and Other Derivatives, Sixth Edition, Pearson Prentice Hall.
3. Redhead K. (1997): Financial Derivatives: An Introduction to Futures, Forwards, Options and Swaps, Prentice Hall.

Additional Readings

1. Kolb R.W., (1997): Understanding Futures Markets, Fourth Edition, Blackwell Publishing, New York
2. Marshall, J.F. and K.R. Kapner (1993): The Swaps Market, Second Edition, Kolb Publishing House

Open-Economy Macroeconomics (ECO 221)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: The course deals largely with the relatively more recent developments in the field of international finance through a macroeconomic model-based approach. It begins though, in Module 1, with the more traditional open-economy models, as a backdrop to the subsequent analysis. The emphasis throughout is on rigour including the application of inter-temporal general equilibrium models based on utility/profit maximization in Units 2 to 4. This will be combined with approaches that yield insights into models that, though rigorous, are not micro-founded. The teaching will rely largely on the use of Obstfeld and Rogoff (1999) supplemented by Rodseth (2000).

Module 1: Traditional Open-Economy Models: (12 Hours)

Open-economy monetary models with minimal structure, Mundell-Fleming-Dornbusch and Mundell-Fleming-Tobin models, Models with traded and non-traded goods, Scandinavian model of inflation.

Module 2: The Basic Inter-temporal Approach to BOP Analysis: (12 Hours)

Basic ideas in a two-period endowment economy and a two-region world economy, Extension to a multi-period small economy, stochastic current account model, Government budget deficits and the current account, Feldstein-Horioka S-I puzzle.

Module 3: Stochastic Models of International Capital Flows and Asset Prices:

(12 Hours)

Trade across random states of nature in a small two-period open economy, Generalization of the model to the world setting, International portfolio diversification, CAPM, Sovereign risk.

Module 4: Money and Exchange Rate Regimes: (12 Hours)

Monetary exchange rate models with maximizing individuals, Nominal exchange rate regimes, Speculative attacks and fixed exchange rate regimes, Target zones for exchange rates, Stochastic global general equilibrium model with nominal assets, Determination of forward foreign exchange premium.

References:

Essential Readings

1. Maurice Obstfeld and Kenneth Rogoff, Foundations of International Macroeconomics, Cambridge, Mass. & Cambridge, England: MIT Press, 1999
2. Asbjorn Rodseth, Open-Economy Macroeconomics, Cambridge: Cambridge Univ. Press, 2000
3. Jacob A. Frenkel and Assaf Razin, Fiscal Policies and the World Economy, 2nd edition, Cambridge, Mass.: the MIT Press, 1992
4. Rudiger Dornbusch, Open-Economy Macroeconomics, Basic Books, New York, 1980

Rural Political Economy (ECO 222)

Number of Credits: 4

Pattern of Evaluation: Non-Standard

Preamble: The objective of this elective is to familiarise students with rural theories and realities in the specific context of the emergence of new forces and issues both nationally and internationally, and the evolution of strategies and policies to deal with them.

Module 1: Agriculture, Allied, and Rural Economics: (12 Hours)

Definitions of and differences between agricultural, allied and rural sectors ó Approaches to rural economics ó Historical role of the rural sector in economic development ó Impact of colonisation on agrarian development ó Indigenous Peoples ó Natural resources ó Case study of India

Module 2: Market Structures: (12 Hours)

Types and characteristics of markets ó Forced commercialisation ó Processes of market interlocking and inter-linkages ó Land Utilisation patterns ó Agrarian Reforms ó Displacement and rehabilitation ó Politics of food and food security ó Sources of Livelihood ó Employment schemes ó Poverty alleviation strategies ó Rural and urban linkages and disconnects

Module 3: National Processes and Globalisation: (12 Hours)

Role of public policies ó Private sector versus government intervention ó Public-Private policy partnership ó Formation of BWIø and WTO ó Dunkel Draft, GATS, AOA, etc ó Impact on imports and exports of developed and underdeveloped countries.

Module 4: Country Assessment Studies: (12 Hours)

Japan, China, Netherlands, Israel, Uzbekistan, Brazil, Mexico, USA, Australia, New Zealand, South Africa, India, Pakistan.

References:

Essential Readings

1. Acharya S.S. and D.P. Chaudhari (eds), Indian Agricultural Policy 6 At the Crossroads, Rawat Publications, Jaipur, 2001
2. Bhalla G.S and Gurnail Singh, Indian Agriculture - Four Decades of Development, Sage Publications, New Delhi, 2001
3. Government of India, State of the India Farmer: A Millennium Study: 27 Volumes, Department of Agriculture and Cooperation, Ministry of Agriculture, and Academic Foundation, New Delhi, 2004.
4. Gulati, Ashok & Tim Kelley, Trade Liberalization and Indian Agriculture, Oxford University Press, New Delhi, 2003.
5. Ingco Merlinda D., and John D. Nash (eds), Agriculture and the WTO: Creating a Trading System for Development, Atlantic Publishers, New Delhi, 2005.
6. Joshi P.K., Ashok Gulati, and Ralph Cummings, Agricultural Diversification and Smallholders in South Asia, Academic Foundation. New Delhi, 2007.
7. Mujumdar N.A. and Uma Kapila, Indian Agriculture in the New Millennium, Volumes 1 & 2, Academic Foundation, New Delhi, 2006
8. Rao Hanumantha C.H., Agriculture, Food Security, Poverty and Environment: Essays on Post-reform India, Oxford University Press, New Delhi, 2006
9. Ray Shovan, Handbook of Agriculture in India, Oxford University Press, New Delhi, 2007
10. Rosset Peter, Raj Patel, and Michael Courville (eds), Promised Land: Competing Visions of Agrarian Reform, Foodfirst, California, USA, 2006

Industrial Economics (ECO 223)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This elective course, to be offered in the third semester, requires a good understanding of both Microeconomics and Macroeconomics. This course aims at providing a theoretical exposition of the behaviour of the firm, market structure and industrial finance with some issues and relevant empirical evidence of Indian industries.

Module 1: Theory of the Firm: (14 Hours)

Firm Competition and Performance: Effects of Monopoly Power- Determinants of Firm Structure- Mergers- Horizontal and Vertical- Conglomerate Integration. Market Structure: Patterns of Market Structure- Determinants of Market Structure- Economies of Scale- Product Differentiation- Capital Requirements. Pricing Strategy in Oligopoly: Theories of Interdependence- Tacit Collusion and Price Leadership- Limit Pricing.

Module 2: Technical Change: (10 Hours)

Market Concentration: Measures of Market Concentration. Advertising: Optimal Advertising- Advertising and Market Structure- Cost of Advertising. Invention and Innovation: Process and Product Innovation- Effects of Innovation on Welfare and Employment- Adoption and Diffusion of Innovation.

Module 3: Financial Analysis: (14 Hours)

Financial Analysis: Funds Flow- Cash Flow Statements- Balance Sheet- Income Statement (Profit and Loss Account)-Ratio Analysis- Multi-Period Compounding- Continuous Compounding. Investment Appraisal: Nature of Investment Decisions- Net Present Value Method- Internal Rate of Return- Discounted Payback Period. Cost of Capital: Determining Components of Cost of Capital- Capital Asset Pricing Model (CAPM)- Weighted Average Cost of Capital (WACC). Capital Structure: Optimum Capital Structure- Modigliani-Miller Hypothesis- CAPM and Capital Structure.

Module 4: Indian Industry: (10 Hours)

Industrial Growth: Trends in Industrial Growth in India-Industrial Location (factors) and Location Policy in India. Small-Scale Industries: Definition-Role-Policy-Issues and Performance. Public Enterprises in India: Performance and Constraints. Competitiveness of Indian Industries: Competition Policy and Foreign Direct Investment.

References:

Essential Readings

1. Ahluwalia I. J., Industrial Growth in India- Stagnation since the mid-sixties, Oxford University Press, Delhi,1985 (Module 4)
2. Hay J and Morris D. J, Industrial Economics- Theory and Evidence, Oxford University Press, (Latest Edition) (Module 2)
3. Koutsoyiannis A., Modern Microeconomics, ELBS/Macmillan, Hong Kong, 1985 (Module1)
4. Martin Stephen, Industrial Economics- Economic Analysis and Public Policy, Macmillan Publishing Company, New York, 1988/latest edition (Module 1)
5. Mohanty, Binode,(eds.), Economic Development Perspectives, Vol. 3, Public Enterprises and Performance, Common Wealth Publishers, New Delhi,1991 (Module 4)
6. Mookherjee Dilip (eds.), Indian Industry-Policies and Performance, Oxford University Press, Delhi,1998 (Module 4)
7. Pandey I M., Financial Management, Vikas Pub. House Pvt. Ltd., New Delhi, 2000 (Module3)
8. Shepherd W. C., The Economics of Industrial Organization, Prentice Hall, Inc., London, 1985 (Modules 1 and 2)
9. Vepa R. K., Modern Small Industry in India, Sage Publications, 1988 (Module 4)

Agricultural Development and Policy (ECO 224)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This course aims to enhance the students' understanding of agricultural development. Starting from basic questions like what factors lead to agricultural development or why does the share of agriculture in GDP go down once economies start developing, the course tries to enhance the students' awareness on contemporary debates in the literature, and leads them to analysis of current governmental policies and strategies for surviving in the globalizing world.

Module 1: Theories of Agricultural Development: (12 Hours)

Role of agriculture in a developing economy vis-à-vis a developed economy; Theories of agricultural development (Lewis, Schultz, Mellor, Hayami and Ruttan)

Module 2: Sustainable Agricultural Development and Food Security: (12 Hours)

Impact of green revolution; Models of spread of technology and experiences in input use efficiency; Measurement and strategies for sustainable development; Food security: Concept, measurement, magnitude, and critical evaluation of government policies

Module 3: Competitiveness of Agriculture Products and Marketing: (12 Hours)

Measurement of efficiency of agricultural products in international markets; Efficiency of agricultural markets in India; Form and impact of government intervention in the markets and its effects on efficiency; Commodity markets: operation and likely impacts; Strategies for surviving in a globalizing world

Module 4: History and Policies for Agricultural Development in India: (12 Hours)

Trends in production since 1950; National Food Policy; Agriculture Policy; Area, productivity, employment and wage rate analysis; Trends in India's agricultural exports and imports and implications

References:

Essential Readings

1. Basu Kaushik, Analytical Development Economics, Oxford University Press, 1998 (Module 1).
2. Bhalla G S., Globalization and Indian Agriculture, Volume 19 of the State of the Indian Farmer Series. Academic Foundation, 2004 (Module 3)
3. Dreze Jean and Amartya Sen, Hunger and Public Action, Oxford University Press, 1989 (Module 2)
4. Lewis Arthur, Economic Development with Unlimited supply of labour, Manchester School of Economics and Social Studies 22: 139-91, 1954 (Module 1)
5. Mellor J and Mudahar M, in Agriculture in Economic Development: Theories, findings and Challenges in Asian context in A Survey of Agricultural Economics Literature, Edited by Lee Martin. University of Minnesota Press, 1992 (Module 1)
6. Norton George and Jeffery Alwang, Introduction to Economics of Agricultural Development, McGraw Hills, New York, 1993 (Module 1)
7. Sawant S D (2002), Indian Agriculture: Past developments and policies for the future, Dantwala Monograph Series, No. 4, 2002 (Module 4)

8. Schultz Theodore, Transforming Traditional Agriculture, Yale University Press, 1964 (Module 1)
9. Sengupta D, Chakraborty D and Banerjee P, Beyond the Transition Phase of WTO: An Indian Perspective on Emerging Issues, Academic Foundation, 2006 (Module 3)
10. Shiva Vandana, The Violence of the Green Revolution, Palgrave Macmillan, 1992 (Module 2)
11. Venugopal Pingali, Input Management, Volume 8 of the State of the Indian Farmer Series. Academic Foundation Executive Summary, 2004 (Module 2)

Political Economy of Reform (ECO 225)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This course analyses the role of political institutions in shaping reform outcomes. It highlights key political challenges to economic reform. What distinguishes this course from a traditional course in political science is the application of analytical rigor to economic and political behaviour. Reforms are viewed as the establishment of institutions that provide incentives for individual decision makers to behave in ways that are collectively desirable. Politico-economic modelling would sharpen our understanding of the process of policy making. The Indian experience of reforms and the various political economy issues are given special attention.

Module 1: The Political Economy of Reform: (12 Hours)

Political Economy of Democratic Transitions: The theoretical orientation, general concepts and arguments.

Economic Policy and Political Stability: Authoritarian Regimes and New Democracies

Institutions and Economic Policy: The Party Systems, Reform of Bureaucracy, Interest Groups and Government

Module 2: Inaction and Delay in Reform & Strategies for Reform: (12 Hours)

Inaction & Delay: The Political Economy of Delayed Reform, Stabilization as a War of Attrition: Alesina-Drazen Model, Resistance to Reform: Fernandez-Rodrik Model. Strategies: Gradualism versus Big Bang, Sequencing of Reform in the presence of Political Constraints

Module 3: The Transition Experience: Macroeconomic Assessment & Lessons: (12 Hours)

From Plan to Market: Understanding transition, the challenge of transition, the challenge of consolidation

Broad Lessons from Transition Experience based on experience of select countries.

Module 4: Democratic Politics and Economic Reforms in India: (12 Hours)

The Evolution of Economic Reform in India: An Overview of Macroeconomic Policies and Performance since 1991, Political Institutions: Federalism, Informal Networks and the Management of Dissent

Political Skills: Introducing Reforms by Stealth

References:

Essential Readings

1. Haggard S and S. Webb, Voting For Reform, World Bank, OUP, 1994 (Module 1)
2. Haggard S. and R. Kaufman, The Political Economy of Democratic Transitions, Princeton University Press, UK, 1995 (Module 1)
3. Sturzenegger F. and M. Tommasi, The Political Economy of Reform, The MIT Press, Cambridge, MIT, 1998 (Module 2)
4. Jenkins R, Democratic Politics and Economic Reform in India, Cambridge University Press, 1999 (Module 4)
5. World Development Report, From Plan To Market, World Bank, 1996 (Module 3)

Urban Infrastructure Finance (ECO 226)

Number of Credits: 2

Pattern of Evaluation: Standard

Preamble: It is well recognized that infrastructure in general and urban infrastructure in particular poses several challenges. The course is designed to acquaint the students with the current state of affairs in the Indian context. The existing gap in the demand and supply of infrastructure has to be addressed in various ways. The students will learn the standard financing methods as well as variants in the realm of PPP. Some novel emerging ideas and practices such as SDOs and Pooled Fund approaches will also be treated.

Module 1: Concept, Status and Delivery Mechanisms: (12 Hours)

Concept of Infrastructure ó physical /social and soft ó Provision of infrastructure by local bodies ó Para-statal ó Core/obligatory services ó LPGs and extended version and actual status in urban India with specific reference to Maharashtra

Module 2: Financing Infrastructure: (12 Hours)

Financing infrastructure: the capacity of local bodies ó user prices. Alternative methods ó Bonds, Banks, Structured Debt Obligations (SDOs), Pooled funding, Revolving Fund ó Case studies in India and abroad ó Tamil Nadu Urban Development Fund (TNUDF)

References:

Essential Readings

1. India Infrastructure Reports (Chapters related to Urban Infrastructure)
2. Bahl, R and J. Linn, Urban Public Finance in Developing Countries, OUP (World Bank), 1992.
3. Singh, K and B. Tai (eds.), Financing and Pricing of Urban Infrastructure, New Age International, New Delhi, 2000.

Additional Readings

Working papers of the Vibhooti Shukla Unit

Henderson, J.V. and J.F. Thisse (eds), Handbook of Urban and Regional Economics, Elsevier Science, 2006.

Regional Economics Theory and Methods (ECO 227)

Number of Credits: 4

Pattern of Evaluation: Non Standard

Preamble: The course would provide basic understanding of the main concepts, issues, problems and techniques in regional planning. Interregional trade will be dealt with in the contexts of regions within a nation. It would help in understanding and analyzing regional growth disparities in India.

Module 1: Regional Growth: (16 Hours)

Meaning of regional growth, *Growth theories*: the neo-classical perspective, export demand models, agglomeration and cumulative growth process. *Inter-regional Trade: Regional trade specialization*: the Ricardian explanation, the factor proportion explanation, *Modern theories of regional trade*: Intra-industry trade, competitive advantage and regional trade, new economic models of trade.

Module 2: Regional Migration: (8 Hours)

Factor Migration: the classical theory of labour migration, *Alternatives*: the human capital model, the job search model, the gravity model. Disparities in Regional Unemployment

Module 3: Regional Policy: (8 Hours)

Macro policy Instruments: Fiscal policy, regional aspects of taxation and government expenditure, monetary policy, import control, devolution and regional policy. *Micro Policy Instruments*: Reallocation of labour, capital

Module 4: Evaluation of Regional Policy: (16 Hours)

Measuring regional disparities, regional development indices, use of composite index, econometric models, regional input output multipliers, principal component analysis, DEA etc. ó case studies

References:

Essential Readings

1. Armstrong, Harvey and Jim Taylor (2004) *Regional Economics and Policy* (3rd edition) Blackwell Publishing, UK. (Module 1,2,3)
2. McCann, Philip (2001) *Urban and Regional Economics* Oxford University Press, UK. (Module 4).
3. Ramanathan, R (2003) *An Introduction to Data Envelopment Analysis A tool for performance measurement*, Sage Publications New Delhi (Module 4).
4. Richardson, Harry (1963) *Elements of Regional Economics* Penguin Edition USA. (Module 1)
5. Sudhanshu Shekhar (2004) *Regional Planning in India Vol I & II*, Anmol Publications Pvt Ltd, New Delhi. (Module 4).

Quantitative Methods in Demography (ECO 228)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This four credit course, to be offered in the third or fourth semester, requires good understanding in Statistics/Econometrics. The course aims at enabling students to pursue further research in applied Demography.

Module 1: Advanced Research Methodology: (10 Hours)

Concepts in Research methods, Quantitative and Qualitative approaches in data collection, Reliability and Validity of measurement, Types of scales, Sampling frame and design. Sampling methods, Multistage sampling in Large scale surveys. Sampling and Non-sampling errors, Sample size determination.

Module 2: Quantitative Methods in Data Analysis: (14 Hours)

Path models with interactions and non-linearity, Analysis of variance, Multiple Classification Analysis, Factor analysis and Principal Components Analysis, Binary Logistic regression. Multinomial logit regression: Basic form of logit model, interpretation of coefficients. Discriminant analysis, Multilevel analysis and application.

Module 3: Modelling in Demography: (14 Hours)

Stable population models, Momentum of population growth. Micro-models of fertility. Models of family buildings strategies, Markov Renewal Process, Nuptiality models. Mortality models, Life Tables, Migration Models, Multi-regional Demographic Models.

Module 4: Indirect Methods: (10 Hours)

Indirect methods in Fertility, Brassø Method and its modification. Indirect methods in Mortality: Estimation of Infant and child mortality by Brass methods modified by Sullivan and Trussel, Estimating Adult mortality based on stable and Generalized Population.

References:

Essential Readings

1. Blalock, Hubert M. (1960): *Social Statistics*, McGraw-Hill Book Company, New York.
2. Dillon, W.R. and Goldstein, M. (1984), *Multivariate Analysis*, Wiley and Sons, New York.
3. Kish, Leslie, (1995): *Survey Sampling*, John Wiley and Sons, Inc. New York .
Preston, Samuel H. Patrick, Heuveline and Michel Guillot, 2003, *Demography: Measuring and Modelling Population Processes*, Blackwell Publishers, 2001 (First Indian Reprint 2003).

Economics of Health and Education (ECO 230)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This elective course covers theoretical foundations of economics of health and education and also techniques of economic evaluation. These two aspects of social infrastructure are clubbed together because there is an interdependence of output and existence of large externalities in both health and education sectors. Also these are important components having critical linkages to human development through improving human capabilities and empowerment. This course aims to equip students with skills to understand and analyze the development of the health and education sectors. The emphasis will be on policy options and issues for developing countries like India but will also draw on the experience of other countries wherever relevant.

Module 1: Economics of Health: (12 Hours)

Distinction between health and health care- Nature of health care as an economic commodity- Demand for health and Supply of health- Opportunity costs and problems of rationing health care. Costs and efficiency- Costs: fixed, marginal and average costs. Efficiency - technical and allocative efficiency, and of various types of equity. Market System and health care needs- Market failure and the role of government ó how insurance markets work, and how they can fail for health care

Module 2: Financing Health Care, Delivery of Health Care: (12 Hours)

The economics of financing health care, different approaches taken by governments in different countries- Options for financing health care in developing countries- The rationale of government funding and regulation of health care- examining the potential role of user charges and community financing schemes. Delivery of health care -decentralization and the role of the private/public mix.- health system reforms. The future of Health Sector reforms in developing countries like India

Module 3: Economics of Education: (12 Hours)

Formal and non-formal education-Special characteristics of education- Implications for economic analysis- Role of the state ó Education, Productivity and Employment-Investment in education: Costs and benefits, Private and social rates of return (Human capital and Signaling theories of education)

Module 4: Indian Education System: (12 Hours)

Indian Education system óRationale of government funding and regulation of education- Alternative method of financing education- Resource allocation to primary, secondary and higher education- Efficiency, equity and distributional aspects: Implications for gender and social groups- Role of private and public sectors, Union and State governments- Special programmes for education.

References:

Essential Readings

1. Becker, G.S., Human Capital 2nd.Edn., National Bureau of Economic Research, New York, 1974
2. Cecchi, Daniel, Human Capital, Family Background and Inequality, Cambridge University Press, 2008
3. Feldstein, P. J., Health Care Economics, Wiley,1993 (Module1)
4. Grand, J., Propper. C and Ray Robinson, The Economics of Social Problems, Palgrave, 2002 (Modules 1 and 3)
5. Henderson, J.W, Health Economics and Policy, South-Western Homson Learning, 2001 (Module 2)
6. Mcpake, B., L. Kumanayake and C. Normand, Health Economics: An International Perspective, Routledge, 2002. (Module1)
7. Musgrove, P., Health Economics in Development, The World Bank, 2004 (Modules 1 and 2)
8. Panchamukhi, P. R., Economics of Health: An Introductory Review, ICSSR, 2002 (Modules 1 and 2)
9. Robinson, E.A.G. and Vaizey, J. (eds), The Economics of Education, International Economic Association , Macmillan , London,1966 (Modules 3 and 4)
10. Tilak, J.B.G., Economics of Inequality in Education, Sage, New Delhi, 1989 (Module 4)

Applied Econometrics for Market Research and Analytics (ECO 231)

Number of Credits: 4

Pattern of Evaluation: Non-Standard

Preamble: The objective of this four credit course is to introduce students to statistical and econometric methods used in market research and analytics. The focus is on applications of techniques to real world problems using the programming language R and other software like SPSS and STATA.

Evaluation Pattern: The mid-semester examination will be replaced by four examinations of 10 marks each. These examinations will emphasise the ability to apply theoretical knowledge to the real world. One examination will be conducted after teaching for each module is completed. This will be followed by the end-semester examination of 60 marks.

Module 1: Data Structures and Multivariate Methods: (12 Hours)

Simple random samples- multistage surveys-biased samples-quality of survey data-data from social experiments; Multivariate methods- Factor analysis-Principal components analysis-Cluster analysis óconjoint analysis.

Module 2: Bayesian Methods: (12 Hours)

Prior and Posterior distribution-Bayesian point and interval estimation- Bayesian analysis of Linear Regression-Monte Carlo integration Markov Chain Monte Carlo simulation-Gibbs sampler for SUR-data augmentation-Bayesian model selection-Practical considerations.

Module 3: Binary Outcome Models: (12 Hours)

Logit and Probit models-Multinomial models-Tobit and selection models- survival models ó models of multiple hazard-models of count data

Module 4: Data and Models: (12 Hours)

Issues arising out of stratified and clustered sampling-treatment evaluation- measurement error models-missing data and imputation-multi ólevel and hierarchical models

References:

Essential Readings

1. Cameron A.C and P. K. Trivedi, Microeconometrics: Methods and Applications, Cambridge University Press, 2006. (All Modules).
2. Dhrymes P, Econometrics, Springer, 1974 (Module 1).
3. Crawley M, Statistics: An Introduction Using R, Wiley, 2007 (All Modules).
4. Frances P.H. and Richard Papp, Quantitative Methods in Market Research, Cambridge University Press, 2006 (Module 3)

Time Series Econometrics – I (ECO 232)

Number of Credits: 4

Pattern of Evaluation: Non-Standard

Preamble: The objective of this course is to impart the necessary econometric understanding required to model and forecast time series data. It emphasises empirical implementation strategies as well as theoretical understanding. It is assumed that the student is familiar with basic concepts of statistical inference that are taught in the Statistical Foundations of Econometrics course. Empirical applications will emphasise the ability to write the relevant algorithms in R programming language.

Evaluation Pattern: The examination pattern will consist of four ten mark examinations (one for each module to be held after the completion of teaching of the respective module) and an end-semester examination for sixty marks.

Module 1: Theoretical Foundations: (12 Hours)

Definition and special features of time series data-Introduction to complex numbers-AR(P) process- Random walks-Ergodicity, stationarity and covariance stationarity-Lag operators, eigenvalues and stationarity-Law of large numbers for serially dependent processes- martingale difference sequence- central limit theorem for martingale difference sequence (without proof)-distribution of OLS estimators for random walk processes- tests for Unit roots: ADF, KPSS, HEGY and Canova-Hansen

Module 2: ARIMA Models: (12 Hours)

AR and Invertible MA processes ó autocorrelation and partial autocorrelation functions ó Yule-Walker equation- Identification of ARMA models- Estimation of ARMA models ó Diagnostic testing- Forecasting

Module 3: Vector Auto Regression and Volatility: (12 Hours)

Identification and Estimation in VAR models - Causality ó Impulse Response Function- Variance Decomposition-Cointegration in VAR models- ARCH and GARCH models ó testing for ARCH effects- FGLS estimation of ARCH(1) ó ARCH in mean, EGARCH models

Module 4: Spectral Analysis: (12 Hours)

Cyclical behaviour and periodicity- The spectral representation theorem- The spectral density- Periodogram and the discrete Fourier transform- parametric and non-parametric estimation of the spectrum ó Cross spectrum - Bivariate Granger causality in the frequency domain

References:

Essential Readings

1. Shumway Robert and David Stoffer, Time Series Analysis and its Applications with R Examples, Springer, NY, 2006 (All Modules)
2. Hamilton James, Time Series Analysis, Princeton University Press, 1994 (All Modules)
3. Enders Walter, Applied Econometric Time Series, Wiley India, 2004 (All Modules)

Experimental Economics and Market Design (ECO 233)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: Experimental Economics has now become an established part of the discipline. The objective of this four-credit elective course is to introduce students to experimental techniques which will enable them to test economic theory in the laboratory as well as in the field.

Module 1: Introduction to Experimental Methods: (14 Hours)

Induced Value Theory-Experimental Design: Randomisation, blocking and other efficient designs- dealing with human subjects- mechanics of conducting an experiment including guidelines-data analysis and statistical testing óreporting the results

Module 2: Experiments I: (10 Hours)

Games: Beauty contest game with variations- One-shot Ultimatum game- Public goods experiment óVoluntary contributions mechanisms with provision points-Productivity under group incentives

Module 3: Experiments II: (12 Hours)

Market structures and price discrimination-incentive mechanism for control of monopoly-Theories of choice under uncertainty and individual decision making under uncertainty-Search decisions-Expectations and asset valuations

Module 4: Markets and Mechanisms: (12 Hours)

Markets:-Classic experiments-Hayek Hypothesis-Learning in markets-Auctions: Classical theoretical and empirical results-Implementation games and mechanism design: Experimental evidence on canonical, Groves and Ledyard and Walker mechanisms

References:

Essential Readings

1. Daniel Friedman and Shyam Sunder, Experimental Methods: A Primer for Economists, Cambridge University Press, 1994 (All Modules)
2. J.H. Kagel and A.V. Roth, Handbook of Experimental Game Theory, Princeton University Press, 1997 (All Modules).

Linear Programming and Data Envelopment Analysis (ECO 234)

Number of Credits: 4

Pattern of Evaluation: Non-Standard

Preamble: The elective is useful for both industrial analysis and policy guidance in an organization. It deals with resource allocation, cost minimization, maximization of profits, accomplishing multiple goals and so on. It also helps in measuring the performances of similar units. It identifies the extent of inefficiency, the causes for inefficiency and suggests the extent to which the performance can be improved. This course will provide hands on computer for applications and analysis.

Evaluation Pattern: The evaluation will be done through 40 marks of continuous evaluation and a 60 marks end-semester examination. The 40 marks of evaluation will consist of a mid-term examination of 20 marks (two questions to be attempted over one hour) and a project of 20 marks on Modules 3 and 4. The project topics will be announced by the 4th teaching week of the semester and the projects should be in by the 10th teaching week. All modules will carry equal weight for the three hour end-semester examination.

Module 1: Linear Programming: (12 Hours)

Formulation, the graphical method, the simplex method, duality, degeneracy, sensitivity analysis
Special linear programming problems ó the assignment problem, transportation problem, linear programming and game theory, linear programming and input output.

Module 2: Extensions in Linear Programming: (12 Hours)

The decomposition method, goal programming- relationships between goal programming and management science /operations research / multiple criteria decision making

Module 3: Concepts of Data Envelopment Analysis (DEA): (12 Hours)

Basic Concepts: A Decision-Making Unit; Measurement of Efficiency; Frontier Analysis, Mathematical Programming Aspects of DEA: Fractional DEA programme ó use of Linear Programming; primal & dual in the format required for DEA; output- maximization and input-minimization DEA models

Module 4: Applications: (12 Hours)

Economies of Scale: Variable and Constant Returns to Scale and DEA; Technical and scale efficiencies; Computer applications using industry data; Extensions in DEA: Malmquist Productivity Index, Use of Regressions and sensitivity analysis in DEA.

Practical applications using sectoral data

References:

Essential Readings

1. Dorfman R, Paul Samuelson and Robert Solow, Linear programming and Economic Analysis, McGraw- Hill Book company, Inc New York, 1958 (Module 1, 2)
2. James P Ignizio, Goal Programming and Extensions, Lexington Books, D.C Health and Company, Lexington, 1976 (Module 2)
3. N.Paul Loomba, Linear Programming: An Introductory Analysis, Tata McGraw óHill publishing Company Ltd Bombay-New Delhi, 1964 (Module 1, 2)
4. N.Paul Loomba, Efraim Turban, Applied Programming for Management, Holt, Rinehart & Winston, Inc.New York, 1974 (Module 1, 2, 3)
5. Ramanathan R, An Introduction to Data Envelopment Analysis A Tool for Performance Measurement, Sage Publications New Delhi, 2003 (Module 3, 4)
6. Ray Subhash, Data Envelopment Analysis Theory and Techniques for Economics and Operations Research, Cambridge University Press, UK, 2004 (Module 3, 4)
7. Tim Coelli - DEAP - Data Envelopment Analysis (Computer) Programme, Centre for Efficiency and Productivity Analysis, Department of Econometrics, University of England, Armidale, Australia (Module 3, 4)

Urban Governance and Infrastructure Issues in India (ECO 235)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: Urbanization is fairly recognized as a driver of Economic growth generally as well as in India. Urban Infrastructure is equally well recognized as the *numero uno* problem that needs serious attention. The course begins by familiarizing the students with the concept and components of Infrastructure and gives a feel for the status and deficit thereof. This course seeks to contextualize urban governance within the fiscal federal structure of India with special emphasis on decentralization. The discussion of 74th Constitutional Amendment is followed by the assessment of the strengths and weaknesses of ULBs. The attempts and approaches at addressing the issues related to infrastructure finance are then studied and the students are made aware of the emerging new financial tools. Whilst the general tone will be relevant to Pan India, illustrations will be drawn from Maharashtra and MMR. The students will be presumed to be familiar with the subject matter covered in the elective course in -Urban Economics-

Module 1: Concept and Components of Infrastructure (12 Hours)

Concept of Infrastructure-physical/social/soft; Components of Infrastructure ó transport/communication/power/ water and sanitation/health/education/housing/media ó infotainment-heritage-culture/governance; Status and Deficit and urban infrastructure in India.

Module 2: Contextualizing Urban Governance (12 Hours)

Indian Fiscal Federal Structure ó Finance Commission-Decentralization ó 74th CAA, details and critique ó 12th schedule ó State Finance Commission ó The Municipal Acts ó mandates, obligatory and discretionary functions Municipal finances appraisal and critique.

Module 3: Urban Governance Conundrum and Illustrations (MMR) (12 Hours)

Issues in Urban Governance-Parastatals ó structure and functioning ó capacity building, role of civil society; Land Market management and affordable housing; - JNNURM (viability gap funding and basic facilities)

Module 4: Financing Urban Infrastructure (12 Hours)

Internal resources of ULBs, Bank funding; SDOs, Pooled fund (classical and modified), Capital market access (muni-bonds), PPP and variants, TNUDF and water aggregating models.

References:

Essential Readings

1. India Infrastructure Reports (Especially Rakesh Mohan, Urban Infrastructure, Business Models, and Land Management).
2. VSC WPS (Especially WP Nos. 1-3, 5, 7, 8, 10, 11, 15, 16, 20, 23-25, 28, 30, 31).

Multiple Linear Regression and its Extensions (ECO 236)

Number of Credits: 4

Pattern of Evaluation: Non-Standard

Preamble: The Objective of the four credit course is to acquaint students with the theory and practice of multiple linear regression, along with an understanding of the implications and remedial measures associated with the failure of its assumptions.

Evaluation Pattern: The mid semester examination will be replaced by four examinations of 10 marks each. These examinations will emphasise the ability to apply theoretical knowledge to the real world. One examination will be conducted after teaching for each module is completed. This will be followed by the end semester examination of 60 marks.

Module 1: The K-variable Linear Regression Model: (10 Hours)

Matrix formulation of the model-partial correlation coefficients-inference and prediction in the K variable model.

Module 2: GLS Estimation of the Multiple Linear Regression: (10 Hours)

Tests for heteroskedasticity and FGLS estimation in the presence of heteroskedasticity-Tests for autocorrelation and GLS estimation in the presence of autocorrelation-Multicollinearity-implications and remedial measures.

Module 3: Specification Errors and Tests: (12 Hours)

Types of specification errors and their implications-Model Evaluation and Diagnostic Tests-Tests of Parameter Constancy-Tests for Structural Change-Nested and Non-nested models-heterogeneity and non-linearity.

Module 4: Alternative Estimations Techniques: (16 Hours)

Instrumental variables and their properties-non-linear regression óquantile regression-introduction to non-parametric regression-method of moments and OLS as a method of moments problem-GMM estimators and their distribution

References:

Essential Readings

1. Johnston J and J. DiNardo, Econometric Methods, McGraw Hill International Edition, 2007 (all modules)
2. Greene, W. Econometric Analysis, Pearson, 2003 (all modules)

Banking: Theory and Policy (ECO 237)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: The objective of the course is to introduce students to the different aspects of commercial banking theory and policy over 48 lectures. The course would discuss the evolution of different kinds of financial systems, the importance of financial intermediaries and the bank as an important financial intermediary. The course would also deal with issues regarding competition in banking, the need for prudential regulation and would discuss the structure of banking in India along with a focus on the role of banks in aiding financial inclusion and as a support for the microfinance institutions.

Module 1: Introduction: (14 Hours)

Evolution of financial systems (bank oriented and market oriented systems) ó Sources and Uses of Funds ó need for financial intermediaries ó banking in general equilibrium theory

Module 2: Competition in Banking: (10 Hours)

Competition and Networks (unitary and branch banking) ó Effect on reputation and risk taking ó Competition and Financial Stability

Module 3: Banking Regulation: (12 Hours)

Banking Crises/Bank Panics - Need and Scope for prudential regulation ó Micro and Macro prudential indicators ó Risk-based regulatory capital ó Deposit Insurance ó Universal Banking

Module 4: Indian Banking: (12 Hours)

Structure of the banking system ó Changes in priority sector lending ó Performance of public sector banks in the post reform period ó recent developments in banking: electronic banking, relationship banking: collateral lending, SARFESI ó Financial Inclusion ó Microfinance institutions

References:

Essential Readings

1. Allen, F. and D. Gale, *Comparing Financial Systems*, The MIT Press, Cambridge, Massachusetts, 2001
2. Freixas, X. and J. Rochet, *Microeconomics of Banking*, The MIT Press, Cambridge, Massachusetts, 1999.
3. Berger, A., P. Molyneux and J. Wilson, *The Oxford Handbook of Banking*, Oxford University Press, New York., 2010
4. Ramakrishna, G. and K. Rao, *Performance of Public Sector Banks After Reforms*, Serials Publications, New Delhi, 2008
5. Ghate, P., *Indian Microfinance: The Challenges of Rapid Growth*, Sage, New Delhi, 2007

Additional Readings

1. Hardy D.C. and Pazarbasioglu, C., Leading Indicators of Banking Crises: Was Asia Different? *International Monetary Fund Working Paper*, 1998
2. Polizatto, V.P., Prudential Regulation and Banking Supervision: Building an Institutional Framework for Banks, *World Banking Working Paper* WPS 340,1990
3. Berger A.N. and G.F. Udell Relationship Lending and Lines of Credit in Small Firm Finance, *Journal of Business*, vol.68, no.3, pp.351-81, 1995
4. Reserve Bank of India Bulletins (various issues).

Survival Analysis (ECO 238)

Number of Credits: 2

Pattern of Evaluation: Non-Standard

Preamble: Survival analysis is applied to data that specifies the time elapsed until an event. It is a mathematical tool of data analysis with wide applications for the study of censored data. Survival analysis can be applied to any branch of Economics to understand the event which includes the transition from failure to success. The objective of the course is to introduce students to survival analysis as a tool for data analysis both in theory and practice with the use of software packages like SPSS and STATA.

Evaluation Pattern: The system of evaluation includes theory and a written assignment. The evaluation will be done through a mid-semester examination of 20 marks, 20 marks for a written assignment and an end-semester examination of 60 marks.

Module 1: Probability Theory and Its Applications in Survival Analysis: (12 Hours)

Fundamental Theorems of Probability, Mathematical Expectation and Moments, Probability distribution; Discrete and continuous, Duration Models, Functions of Survival Analysis, Survival Time, Non-parametric Approach to Survival Analysis Kaplan-Meier Estimate of Survival Function, Product Limit Life Table, Estimate with Censored Time

Module 2: Life History Analysis: (12 Hours)

Life-History Analysis, Comparison of Survival Distributions, Parametric Approach to Survival Analysis, Cox Proportional Hazard Model-Basic form of Hazard model, Interactions, Calculation of Life Table from the Proportional Hazard model, Inference and Goodness of Fit. Survival Models-Hazard models with Time Dependence, Time dependent Predictor Variables and Coefficients.

References:

Essential Readings

1. Hogg V Robert, Joseph W. Mckean and Allen T. Craig, Introduction to Mathematical Statistics, Dorling Kindersely (India) Pvt. Ltd. New Delhi, 2006
2. R.D. Rutherford and Minja Choe, Statistical Models for Causal Analysis, John Wiley and Sons Inc. New York, 2003
3. Lee E.T, Statistical Methods for Survival Data Analysis, John Wiley & Sons Inc., New York, 1992

Economics of Social Infrastructure (ECO 239)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This is a basic course which will provide a theoretical framework required to examine the issues related to social infrastructure. This paper covers theoretical foundations of Economics of Social Infrastructure and techniques of economic evaluation. The different components of social infrastructure have critical linkages to human development through improving human capabilities and empowerment. Hence, the paper aims to equip students with skills to understand and analyze these linkages. There will be emphasis on policy options and issues for India but will also draw on the experience of other developing countries where relevant.

Module 1: Approaches to Social Infrastructure: (12 Hours)

Human Resource Development and Human Development: Differences and Linkages, Measurement of Human Development - Special Characteristics of health, nutrition education and environment- Externalities and Role of the State - Utilitarianism, Rawls, Arrow and Amartya Sen- Social Infrastructure and Economic Growth.

Module 2: Human Capital – Theory of Human Capital: (12 Hours)

Consumption and Investment Aspects ó Rates of Return and their Measurement ó Issues and Limitations ó Human Capital and Growth Theories-Concept of Social Capital: Role and Policy Implications.

Module 3: Economics of Infrastructure with Special Reference to Health, Nutrition Education and Environment: (12 Hours)

Economics of Nutrition: Characterization and measurement of under nutrition-Linkages with Morbidity, Mortality- Implications for Economic Analysis. Health: Determinants of Health Status- ó Cost-Benefit and Cost-Effectiveness Approaches-Education, Productivity and Employment ó Development, environment and the role of economic analysis- Economic Measurement of environmental impacts

Module 4: Social Sector Policies in India: (12 Hours)

Policy Framework in Five-Year Plans ó Economic Reforms and Social Sectors - Typology of Economic Growth and Human Development in Indian States ó Trends and Disparities in Social Infrastructure Development ó Role of Public and Private Sectors ó Financing of Social Sectors - Pricing of Social Sectors ó Social Attainment ó Limitations of Policy ó Social Security: International Comparison ó Special Policy Issues.

References:

Essential Readings

1. Becker, Gary S., Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education, Second Edition, New York: Columbia University Press, 1975 (Module 2)
2. Chelliah, Raja J. and R. Sudarshan (ed.), Income Poverty and Beyond: Human Development in India, UNDP, Social Science Press, New Delhi, 1999 (Modules 1 and 4)
3. Ehtisham A., (ed.) Social Security in Developing Countries, Oxford University Press, New Delhi, 1999 (Module 4)
4. Dixon et al, Economic Analysis of Environmental Impacts, The World Bank. Earthscan Publications Ltd, London, 1994
5. Feldstein, P. J., Health Care Economics, Wiley, 1993 (Module 3)
6. Fukuda-Parr S. and Shiva Kumar A. K. (ed.), Readings in Human Development: Concepts, Measures and Policies for a Development Paradigm, Oxford University Press, New Delhi, 2003 (Module 1)
7. Gillespie S. and Hadda, L., The Double Burden of Malnutrition in Asia, Sage, 2003 (Modules 1 and 3)
8. Henderson, J.W., Health Economics and Policy, South óWestern, Thomson, 2001 (Module 3)
9. Richard, P., G. Layard and S. Glaister, Cost Benefit Analysis, Cambridge University Press, 1994
10. Ray, D., Development Economics, Princeton University Press, 1997 (Module 2)
11. Sen, A., Development as Freedom, Oxford University Press, New Delhi, 1999 (Module 3)
12. Sen, A. and J. Dreze, India: Economic Development and Social Opportunity, Oxford University Press, New Delhi, 1998 (Module 4)
13. Sen, A. Commodities and Capabilities, Oxford India Paperbacks, New Delhi, 2002 (Module 1)
14. Svedberg, P., Poverty and Under Nutrition Theory Measurement and Policy, Oxford University Press, New Delhi, 2002 (Modules 1 and 3)
15. Tendulkar Committee's Report on Poverty Estimates for India, 2009.(GOI)

Environmental Economics (ECO 240)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: This course is designed to introduce students to key contemporary issues in environmental economics and equip them with the tools and methodologies that are in general applied to analyze environmental problems and policies. An attempt will be made to discuss the currently debated environmental problems and policies in India and other countries.

Module 1: Economic Growth and the Environment: (12 Hours)

Economic Growth and environment, Limits to growth and Sustainable Development, Environmental Kuznets Curve- Environment as an economic and social good/asset, Natural Resources (Exhaustible, renewable, common property resources) - Accounting and Natural Resource Management- Green Accounting

Module 2: Micro foundations of Environmental Economics: (12 Hours)

Types of goods and services - Public, private and common pool resources, externalities and market failure, Social Cost- Benefit- Analysis, Pollution as a Public Bad, The equi-marginal principle- Economic efficiency versus equity, Damage functions and abatement costs, Role of Institutions in environmental protection, Coase Theorem

Module 3: Supplementary Analytical Tools and Environmental Issues: (12 Hours)

Valuation of Natural Resources: Direct and Indirect Methods Environmental impact assessment, Life Cycle Analysis, Pollution- Air, Water and Noise; Regional, National and Supranational dimensions of environmental degradation, Ozone Layer Depletion, Green House Gas Emissions, Global Warming, and Climate Change

Module 4: Environmental Policy and Practices: (12 Hours)

Few approaches to environmental policy: *Command and control - Environmental Standards, Technology Mandates; Market based instruments - Taxes, subsidies, liability instruments tradable permits; Rehabilitation and Resettlement Policy- Kyoto Protocol; Rio debate- Relevant Case Studies*

References:

Essential Readings

1. Dixon, J. A., and M. M. Hufschmidt, (ed.) Economic valuation techniques for the environment: A Case Study Workbook. Baltimore: Johns Hopkins University, 1986
2. Field, B.C., Environmental Economics- An Introduction, McGraw-Hill International Edition, Singapore, 1997
3. Hodge, I. Environmental Economics, MacMillan Press Ltd., London, 1995
4. Jeroen C.J.M. van den Bergh, Handbook of Environmental and Resource Economics, Edward Elgar Publishing, 2002
5. Jinhua, Z. and T. Fisher, Notes on Irreversibility, Sustainability and the Limits to Growth, <http://econpapers.repec.org/paper/isugenres/default22.htm>
6. Kolstad, C., Environmental Economics, Oxford University Press, USA, 2006
7. Sankar, U., Policy Instruments For Achieving Low Carbon and High Economic Growth in India (Monograph), National Institute of Public Finance and Policy, New Delhi, 2009
8. United Nations Statistical Division: System of Environmental-Economic Accounts (SEEA) <http://unstats.un.org/unsd/envaccounting/seearev>

Economics of Services (ECO 241)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: The objective of the course is to bring an understanding of economics of services to students. The course deals with various microeconomic and macroeconomic aspects of the service economy. The course includes empirical studies on trade in services and macroeconomic dynamics in services sector growth in India. The discussion on sectoral and sub-sectoral services would be in the formal-informal sector perspective wherever applicable.

Module 1: Introduction to Economics of Services: (12 Hours)

Concept of service- Attributes of service, Main types of services and their classification, service-goods relationship, economic services; Rural-Urban Services-dualism
Services Economy- Concept and its role in development
Knowledge Economy- Concept and Characteristics, Innovation and R&D
Theory of Unbalanced Growth, Fisher-Clark hypothesis, Fuchs model of inter-sectoral shift in employment, Gemmellø extension of Fuchso model, Neo-Industrial Theory of Self-Services

Module 2: Value and Pricing of Services and Measurement of Service Output:

(12 Hours)

Calculation of the value of a service product, definition of a unit of service, characteristics of non-market services
Service production and distribution costs, the basic trade-off and derivation of the supply-system cost function, optimal charges for services
The provision of services in a market economy, Fee-price of service, Subscription Business model
Measurement of output and productivity in the services sector; issues and measures

Module 3: Trade in Services: (12 Hours)

Characteristics of Trade in Services- Melvin Approach to Trade in Services, Jones and Ruane theory of trade in services; Barriers to trade in services and Methods to measure them; World trade in Services- General Agreement on Trade in Services (GATS); India's trade policy and Trade in Services

Module 4: Services Sector in India: (12 Hours)

Dynamics of services sector growth in India, Three-sector hypothesis and India, Role of service sector in Indian Economy, Decomposition of Services sector growth in India and its implications. Employment in Services Sector-a gender perspective, Business Services, Telecommunications, Tourism, IT and ITES in India. FDI in services, Public Policy and services- Service Tax in India, Goods and Service Tax, Public Private Partnerships in Services

References:

Essential Readings

1. Akehurst, G. and J. Gadrey, *The Economics of Services*, Routledge, 1998 (Modules 1 and 2)
2. Chanda, R., *Trade in Services and India: Prospects and Strategies*, Wiley India, 2006 (Module 3)
3. Chanda, R., *Globalization of Services: India's Opportunities and Constraints*, Oxford University Press, New Delhi, 2002 (Module 3)
4. Jansson, J. O., *The Economics of Services, Development and Policy*, Edward Elgar Publishing, 2006 (Module 1 and 2)
5. *Economic Census of India (Latest)*

Additional Readings

1. Baumol, W.J., Blackman, S.A. Batey and Wolff, E.N., *Unbalanced Growth Revisited: Asymptotic Stagnancy and New Evidence*. *American Economic Review* 75:806-17, 1985.
2. Fuchs, V., *Economic Growth and the Rise of Service Employment*, Prepared for conference *Towards Explaining Economic Growth*, Institute of World Economics, Kiel, Federal Republic of Germany, 1980
3. Glasmeier, A. and Howland, M., *Service-led Rural Development: Definitions, Theories and Empirical Evidence*, *International Regional Science Review*, 16, 197-229, 1994
4. Gordon, J. and P. Gupta, *Understanding India's Services Revolution*, IMF Working Paper WP/04/171, September, 2004
5. Hindley, B. and A. Smith, *Comparative Advantage and Trade in Services*, *World Economy*, December, 7(4), 369-89, 1984
6. Mattoo, A., R. Rathindran, and A. Subramanian, *Measuring Services Trade Liberalization and Its impact on Economic Growth: An Illustration*. Policy Research Working Papers. No.2655, The World Bank, Washington, D.C., 2001
7. Melvin, J. R., *Trade in Producer Services: A Heckscher-Ohlin Approach*, *Journal of Political Economy*, 97(5), October, 1180-1196, 1989
8. Seth, V. K., *Economics of Services*, Ane Books India, 2007
9. Triplett, J. E. and B.P. Bosworth, *Productivity in the Services Sector*. In R. M. Stern, ed., *Services in the International Economy*. Ann Arbor: University of Michigan Press, 2001

Health Economics (ECO 242)

Number of Credits: 4

Pattern of Evaluation: Standard

Note: Students who opt for this course cannot opt for the Elective on Economics of Health and Education

Preamble: This course provides the theoretical foundations and economic evaluation of Health Economics. The main focus is the understanding of health issues and policies in a developmental perspective relating specifically to the financing, delivery, and efficiency of health systems. The course also attempts to evaluate policies in the context of market versus State provision of health care.

Module 1: Economics of Health: (12 Hours)

Distinction between health and health care - Determinants of health - Health Accounts: sources of health expenditure; providers of health care and health expenditure by functions - Health care and its linkages with poverty, nutrition; morbidity and mortality- Demand and Supply of healthcare - Opportunity costs and problems of rationing- health care-Costs and efficiency-Types of equity. - Markets vs State.

Module 2: Financing Health Care and Delivery of Health Care: (12 Hours)

Economics of financing health care - Financing options- The rationale of government funding and regulation of health care- user charges and community financing schemes ó issues of affordability and accessibility-Delivery of health careóModels of decentralization - private/public mix. Private and Public Health Insurance ó Formal and informal sectors.

Module 3: Evaluation of Health Care: (12 Hours)

Conceptual Foundations for health utility measurement-Preference based measures of health- Contingent valuation in health- Discrete choice experiments in health economics- stages and Validity of discrete choice variables. Economic evaluation in health care-Cost-effectiveness analysis- Decision rules in economic evaluation.

Module 4: Health Approaches in India: (12 Hours)

Economic dimensions of health system in India-Health Indicators and outcomes - Nutritional concerns óRole of government in health care-Equity issues in health and health care systems - Social and gender inequalities - Social security measures-Health care in India- Health and population policies- Health sector reforms in India.

References:

Essential Readings

1. Jones, A.M. (ed.), The Elgar Companion to Health Economics, Edward Elgar, USA, 2006 (Modules 3 and 4)
2. Glied S. and P.C. Smith (ed.) The Oxford Handbook of Health Economics, New York, 2011 (Modules 3 and 4)
3. Henderson, J.W., Health Economics and Policy, South óWestern, Thomson Learning, 2001. Chapters: 2 and 3 (Module 2)
4. Mcpake, B., L. Kumanayake and C. Normand, Health Economics: An International Perspective, Routledge, 2002 (Module1)
5. Musgrove, P., Health Economics in Development, 2004 The World bank. Chapters: 2,3,4,9 and 10 (Modules 1 and 2)
6. Panchamukhi, P. R., Economics of Health: An Introductory Review, ICSSR, 2002 (Modules 1 and 2)
7. World Health Organization A System of Health Accounts, 2011
8. National Health Accounts-India: 2004-05, http://www.whoindia.org/LinkFiles/Health_Finance_National_Health_Accounts_2004-05.pdf

Cities, Citizens and Cinema (ECO 243)

Number of Credits: 2

Pattern of Evaluation: Non-Standard

Preamble: This Elective is an attempt to examine issues of cities and citizens across both time and space through a visual analytical perspective. It is envisaged that this course will integrate theoretical as well as empirical perceptions in the concrete reality of how cinema-citizens have articulated several issues through various portrayals of and within the city. The investigation of economic aspects of citification and metropolitanisation is specifically located in the city of Mumbai/Bombay, and is based on the dialectical relationship between both cause and effect, and also between imagery and reality. It is preferred that students opting for this course have basic knowledge of urban issues.

The course will be divided into three equal phases ó the first 8 lecture-hours for collective reading and discussions, the second for Lecture-demonstrations by several visual documentators and chroniclers of identified city economic issues, and the last for formal supervised writing of an assignment based on an integration of the first two phases. Students opting for this course can either analyse a particular issue across several articulations, or several inter-linked issues within specific cinematic materialisations. For instance, migration can be examined regarding the treatment of the issues across selected documentaries, or a single documentation can be critiqued through an investigation of combined issues of migration, displacement, and poverty.

Labour patterns and conditions of work
Migration and displacement
Marginalisation and exclusion
Ghettoisation, settlements and neighbourhoods
Poverty and destitution

References:

Select Readings

1. D'Monte, D., *Ripping the Fabric: The Decline of Mumbai and Its Mills*, OUP, 2002
2. Goklusing, K. Moti and W. Dissanayake (ed.), *Popular Culture in a Globalised India*, Routledge, 2008.
3. Harvey, D., *Social Justice and the City*, University of Georgia Press, 2009
4. Jacobs, J., *Cities and the Wealth of Nations*, Random House, New York, 1984
5. Majumdar, R., *Bombay Cinema ó An Archive of the City*, Permanent Black, 200.
6. Mennel, B., *Cities and Cinema*, Routledge, 2008
7. Menon, M. and N. Adarkar, *One Hundred Years, One Hundred Voices: the Millworkers of Girangaon: An Oral History*, Seagull, Calcutta, 2004
8. Sengupta, A., *Reports on Unorganised Sector*, The National Commission for Enterprises in Informal Sector, New Delhi (2006, 2009).

Selected Cinema (Indicative)

1. *Arrival*: Mani Kaul
2. *Seven Isles*: Films Division

3. Bombay Our City/Hamara Shahar : Anand Patwardhan
4. The City Beautiful: Rahul Roy
5. Seven Islands and a Metro: Madhushree Dutta
6. Roger and Me: Michael Moore
7. Jari Mari ó Of Cloth and Other Stories: Surabhi Sharma
8. Bombay Workers: Vincent Derours and Dominiwue Henry
9. A dollar a Day: Bombay Jungle: BBC

Core References

1. Bhaduri, Amit, The Economics Structure of Backward Agriculture, Academic Press, London and New York, 1983
2. Dewan, Ritu Political economy of Agrarian Reforms in India: Nexus with surplus Extraction, Himalaya Publishing House, Mumbai, 1991
3. Harvey, D., The New Imperialism, OUP, Oxford, 2005
4. Patnaik, U., Agrarian Relations and Accumulation-the Mode of Production Debate, Sameeksha Trust/OUP, 1990
5. Patnaik, U., The Agrarian Question in Marx and His Successors, Leftword Books, 2007

Metropolitan Finance and Governance in India¹ (ECO 244)

Number of Credits: 4

Pattern of Evaluation: Standard

Preamble: Metropolitan Regions are gaining prominence in India as drivers of economic growth. However, these metropolitan regions face considerable challenges in terms of providing infrastructure and necessary public goods to the population. This course intends to introduce students to the essential aspects of metropolitan (public) finance and the nature of metropolitan governance in India. It begins by providing an exposure to the issues related to metropolitan economies, governments and the basic theory of metropolitan public finance. It then introduces the theory on metropolitan governance and the experience of metropolitan governance in India. Students are then acquainted with metropolitan public finance practices in some developing countries. Finally, the course highlights the complexities and policy debates related to urban land governance and management in metropolitan regions in India. The course is heavy on expected reading requirement.

Module 1: Primer on Metropolitan Regions: Economics, Government, Finance (12 Hours)

An overview of metropolitan of issues related to metropolitan economy, government and public finance including grant financing and capital financing. [BLW chapters 1, 2, 3, 4, 6, 9, 13, 15]

Module 2: Metropolitan governance (theory and illustrations from India): (12 Hours)

Conceptual understanding of governance ó new institutional economics - transactions cost analysis - consolidation versus polycentricity ó governance in Indiaø metropolitan regions. (VSU WP, CPRR)

Module 3: Metropolitan Public Finance (developing countries' experience): (12 Hours)

Policy and Administrative Issues ó Case Studies of related to China, Sao Paulo, and Mumbai. [BLW chapters 10, 11, 12, 14]

Module 4: Urban Land Management: (12 Hours)

Management of public land ó extant practices ó land acquisition ó Urban Land-Use Planning and outcomes ó Introduction of tools for land value capture (Monetization/ Land based Fiscal Tools). [WP/SR-WB, MELS, LBFT]

References:

Essential Readings

1. Bahl, R., J. Linn, and D. Wetzel [BLW] (Eds.) (2013). Financing Metropolitan Governments in Developing Countries, Lincoln Institute of Land Policy.
2. Centre for Policy Research Report [CPRR]: Metropolitan Governance Mega-Cities in India
3. VSU WP numbers: 15, 16, 24, 25, 38, 41, 43, 44.
4. WPs and Synthesis Report prepared for the World Bank on Urban Land Management in Mumbai. [WP/SR-WB]
5. Monetizing Excess Land Study: WB- IDF, George Peterson et al. [MELS]
6. Land Based Fiscal Tools in India, NCAER/GOI: V.K. Phatak [LBFT]
7. Involuntary Re-Settlements Sourcebook: A Planning and Implementation Good Practice Source Book, ADB, November 2012,

¹ Expected pre-requisites: Understanding of Urban Economics/Issues, at the level of Urban Economics Course taught in semester III.

Data Mining (ECO 245)

Number of Credits: 4

Pattern of Evaluation: Standard

This paper is designed to learn advance concepts which are applied for economic modelling. The basic understanding of mathematics, statistics and exposure to R software is prerequisite of this course.

Module 1: Introduction to Economic Modelling [12 Hours]

Foundation of economic modelling, Pattern mining and analysis, Clustering and classification methods, Random forest algorithms.

Module 2: Computational Methods for Economic Modelling [12 Hours]

Artificial Neural Networks, Support Vector Machines, Autoassociative Networks, Rough Sets, Incremental Learning, Multi-agent Systems, Genetic Algorithms, Particle Swarm Optimization and Control Systems.

Module 3: Neural Approaches to Economic Modelling [12 Hours]

Multi-layer Perceptron (MLP) Neural Networks, Radial-Basis Function (RBF) Neural Networks, Support Vector Regression (SVR), Methods of Modelling Dynamical Economic Systems.

Module 4: Applications of ANN and SVM for Economic Modelling [12 Hours]

Modelling and forecasting economic defaults and system failure, stock index modelling, forex modelling and predictive analytics.

References:

1. Tshilidzi Marwala, 2013, Economic Modelling Using Artificial Intelligence Methods, Springer.
2. McNelis, Paul D., 2005, Neural Networks in Finance: Gaining Predictive Edge in the Market by *Paul D.*, Academic Press.
3. Zaki and Meira, 2014, Data Mining and Analysis: Fundamental Concepts and Algorithms, Cambridge University Press.

Economics of Climate Change and Resource Development (ECO 246)

Number of Credits: 4

Pattern of Evaluation: Standard

Climate change is posing several challenges to the sustainability and livelihood across the globe. Uncertainty of climatic change is creating hurdles in the process of sustainable development. Understanding and mitigating climate change have become important aspect of policy making. This 4 credit course aims to equip students with the necessary economic tools to understand the implications of climate change on natural resources and understand issues in renewable energy in response to resource management. This course is built on the course in Environment Economics in semester III.

Module 1: Understanding Economics of Climate Change [12 Hours]

Defining climate change; Climate change as public good-market failure; Climate change and externalities; Impact of Climate change -adaptation-vulnerability and climate induced migration; Sectoral effects of climate change. (Cost-benefit evaluation)

Module 2: Mitigating Climate change [12 Hours]

Economic approach to valuing damages from climate changes: market based method, and non-market method; Economic efficiency of mitigating programs; financing Climate Change as a common; Measures- policy tools in mitigating climatic change: Cap and trade program, (institutional responsibilities)-Country level (developed and developing) policies for meeting the climate change challenges; International treaties and working together towards a better future-obstacles to reaching a consensus at the global scale, Balancing the policies to benefit both developed and developing economies.

Module 3: Development of Resources and Climate Change [12 Hours]

Conventional resources; Active and passive values of resources; Public policies for resources; Markets and efficiency; Pricing of resources; Technology and resources- transformation of resources in regards to climate change.

Module 4: Use of Resources for Renewable Energy [12 Hours]

Costing of renewable Energies, and its viability (long term v/s short term); Energy consumption; Energy demands. Structure of Energy markets; Pricing of energy: from conventional/nonconventional resources; Cases across developed and developing countries.

References:

Essential Readings

1. Stern Nikolas (2006) Economics of climate change- The Stern Review.
2. Field Barry C. (2012) Natural resource Economics: Introduction, Levant publication Kolkata.
3. Harris and Roach (2014) Environmental and Natural Resource Economics: A Contemporary Approach, Third Edition, Springer.
4. Marina Cazorla and M Toman, (2000), International Equity and Climate Change Policy, Climate Issues Brief No 27, Washington DC: Resources for the Future

RULES FOR DISSERTATION COMPONENT OF THE M.A. PROGRAMME

The dissertation component (8 credits) of the M.A. programme is being introduced from the Academic Year 2016-17 in lieu of Indian Economy I & II. The details are as follows

1. An Administrative Committee comprising of teachers and office staff will be formed to administer and oversee the implementation of the programme, with the Director of the Department as Chairperson.
2. Each faculty member shall suggest a minimum of four/five focused topics on the Indian economy reflecting a post graduate level of rigour after the mid-semester of Semester II. Each topic must have at least two easily accessible references. (The office may circulate a Notice for the same).
3. The list of topics shall be displayed on the Notice Board before the end of lectures for Semester II.
4. Students may choose a topic of their choice and the same shall be registered with the Department office at the beginning of Semester III.
5. Students shall be allocated to faculty following a random allotment irrespective of the topic selected by the student.
6. Students shall be guided by a dissertation committee comprising of two faculty members - a guide and co-guide. The dissertation committees will be formed by the Administrative Committee. The co-guide will be determined on the basis of expertise in the topic chosen / methodology adopted by the student for the dissertation.
7. The dissertation will carry **8 credits** and the break up credits will be as follows ó
3 credits for academic writing and presentation skills component
4 credits for the dissertation and
1 credit for the viva-voce examination.
8. The 3 credits for academic writing and presentation will have to be obtained through attending workshops conducted for the same, at the end of which there will be an evaluation. The evaluation may consist of a series of assignments /tests which will be marked out of 50 marks.
9. The student's performance at the viva-voce examination will be assessed out of 50 marks. The breakup of marks will be as follows:
30 marks for the understanding of the topic
10 marks for quality of presentation
10 marks for communication skills

A minimum score of 40 marks will be required for the student to get the credits in this component.

10. A student who does not get a score of 40 in total in 8 and 9 or those who fail to submit their presentations/dissertation as per schedules will be given a grade F and be deemed to have failed in the dissertation component and will not be eligible for getting any credits specified in 8, 9 and 10.
11. Students are required to meet and consult with the dissertation committee (guide /co-guide) for at least 15 hours during the semester whilst reading for and writing the dissertation. These meetings will be recorded in an attendance sheet maintained by the guide and co-guide together.
12. The student will have to make two presentations ó first presentation during the middle of the 4th semester and one at the end of it. Both the presentations are compulsory. The student will not be graded on the basis of the first presentation. The objective of the first presentation is to enable the student to incorporate suggestions for the final presentation to be made towards the end of the fourth semester. The dates for both the presentations will be displayed at the beginning of the fourth semester. At the end of the second presentation, the student will have to submit a copy of the dissertation to the office.
13. Each faculty member gives his/her mark and the average of marks shall be considered as the final mark obtained by the student
14. The dissertation will have to be typed in 1.5 spacing, on one side of the paper and properly bound .It will have to be countersigned by the guiding teacher.
15. The dissertation will be graded in the second presentation a three member faculty committee comprising of the guide and two other faculty members.
16. Students who have failed or those who failed to submit their presentations as per schedule will be deemed as Fail and can submit/re-submit the dissertation when the term opens in June and will be evaluated along with the additional exam that is conducted in June/July of each year.
17. Students will be forewarned about copying and plagiarism. In case any violations of the letter and spirit of independent essay writing are detected, it will be treated as a case of examination malpractice by the student and appropriate action will be taken.

Detailed Rules and Regulations of the Credit-Based System*

The credit-based semester system shall be a two-year four-semester course where a student shall have to acquire a **minimum** of 72 credits to qualify for the degree of M.A. in Economics, 32 of which shall be obtained from core courses while the other 32 shall have to be obtained from the electives and 08 credits from the Dissertation Component. The details of semester-wise credits to be obtained are given in the following table.

Semester	No. of Courses	Credits per course	Total Credits to be Obtained
I	4	4	16
II	4	4	16
III	5	4	20
IV	3	4	12
	Dissertation Component	8	08
Total Credits for the Course			72

The evaluation pattern of the elective courses can be either in standard format or non-standard format. The standard format will have a mid-semester examination of 40 marks and an end-semester examination of 60 marks. In the non-standard format, 40 marks may be obtained through any approved format. Non-standard electives will also have an end-semester examination of 60 marks. All core courses will follow the standard format of evaluation.

1.0 The pattern of evaluation and other relevant information for all courses offered in a semester will be announced at the beginning of the semester.

1.1 The maximum marks obtainable for each course shall be hundred marks.

1.2 Credits for a course can be obtained only by appearing for both the mid-semester and end-semester examination. Further, a candidate will be allowed to appear for the end-semester examination only if he/she has appeared for the mid-semester (regular or supplementary) examination.

1.3 For every course where credits are obtained by one mid-semester and one end-semester examination exclusively, the mid-semester examinations shall be of forty marks and the end-semester examination shall be of sixty marks. The mid-semester examination shall be of two hours duration and the end semester examination shall be of three hours duration. In case of non standard pattern, a student will be allowed to appear for the end semester exam only if he/she has complied with the exam requirement related to 40 marks.

* These rules apply to students taking admission from the academic year **2018-19**

1.4 The Director shall determine the time table of all the examinations including the relevant deadlines with sufficient notice to the students. The Director may revise the time table and deadlines in exceptional circumstances.

1.5 Students who do not appear for the mid-semester or end-semester examination are required to appear for a Supplementary Examination. An application to appear for Supplementary Examination will have to be made by the student within one week after the end of the relevant examination.

1.6 A student who remains absent for one or more papers in the regular exam in the mid semester and/or end-semester examination, must appear for all the papers in the Supplementary Examination. The performance of the candidate in papers that he/she may have already appeared for in the **regular** examination will be considered null & void and the performance in the Supplementary Examination will be considered for computing the result.

1.7 The Supplementary Examination for the mid-semester examination will be conducted before the end-semester examination of the relevant Semester. The end-semester Supplementary Examination for Semesters I & II will be conducted after the regular end-semester examination of Semester II. The end-semester Supplementary Examination for Semesters III & IV will be conducted after the regular end-semester examination of Semester IV.

1.8 A student must secure a minimum of 40 marks (mid-semester plus end-semester examination) in a given course in order to be declared as passed in that course and to obtain the number of credits assigned to that course. A candidate who does not score a minimum of 40 marks for the course shall be deemed to have failed that course and will be awarded a letter grade 'F' for the course. Students who have remained absent in the exam for one or more papers will not be allowed to keep terms (ATKT) unless they appear for the Supplementary examination. (If a student is not allowed to keep terms, he/she is not eligible for admission to Semester III). It is important to note that absence at a particular exam will not be considered as failure.

1.9 A student obtaining the letter grade 'F' in a course will be allowed to keep terms and proceed to Semester III if he/she has acquired the grade 'F' in not more than four courses in Semesters I and II taken together.

1.10 A student who has been allowed to keep terms will have to appear for the relevant mid-semester examination of 40 marks and an end-semester examination of 60 marks held in the subsequent semester. The provision of supplementary exams can be availed by ATKT students as well. Students who remain absent for any ATKT exam will be required to appear for all the papers in which he/she had obtained an ATKT at the Supplementary examination.

1.11 An Additional end-semester examination of 60 marks which will be held after the declaration of Semester IV results. This examination will be held for students who have failed courses across semesters. The relevant marks obtained in the mid-semester examination will be carried forward. If a student fails the ATKT attempt then he/she can appear for the Additional examination and the

mid-semester marks of the ATKT attempt will be carried forward. This additional examination will be given on the basis of an application made by the student within 10 days of the declaration of Semester IV result. If a student fails an additional exam in a given course, he/she can appear for the 60 marks end-semester examination in the relevant semester.

A student who has failed a course (after the declaration of Semester IV results) can also opt to appear for a mid-semester exam of 40 marks and end-semester exam of 60 marks which he/she will have to appear for both the 40-60 marks in the same semester. For students who opt for the 40-60 format to clear their courses, the 40 marks of this format will be considered while computing the results. The student will take this exam with the regular mid-semester and end-semester exams in the subsequent semester.

1.12 A student who fails in a course shall be allowed to present himself/herself for assessment in the same course when the course is offered again subject to a maximum of three attempts (inclusive of the additional examination) in addition to the original attempt.

1.13 In case a student has failed in a course and the course in which he/she desires to present himself/herself for assessment again is not being offered for any reason, the Examination Committee shall hold a mid-semester and end-semester examination at a suitable time which will be intimated to the student sufficiently in advance subject to a maximum of two such attempts.

1.14 If a student fails in an elective, the student shall be allowed to choose another elective in its place from the list of the electives on offer at the time. He/she will be allowed to exercise his/her choice at the most twice.

1.15 Students of Semester III and IV will be required to apriori declare the elective courses they wish to audit within one week after the start of lectures for the relevant semester. An audit course enables a student to attend lectures without the benefit of a grade or credit for the course. The audit course will be reflected on the grade sheet only if the student has complied with the necessary requirements which have been certified by the concerned teacher.

1.16 A student who has passed in all the core courses and the required number of elective courses and obtained a minimum of 72 credits shall be eligible for the Master's Degree.

1.17 The total performance within a semester and the continuous performance from the second semester onwards shall be indicated by a Grade Point Average (GPA) and cumulative grade point average (CGPA). The Class of the student will be decided by the CGPA obtained and will be indicated in the fourth semester. The summation in the calculation of CGPA is over all courses. They are to be calculated as follows:

$$GPA = (\sum (C_i G_i)) / (\sum C_i)$$

$$CGPA = (\sum \sum C_{ni} G_{ni}) / (\sum \sum C_{ni})$$

$$OWPM = (\sum \sum C_{ni} M_{ni}) / (\sum \sum C_{ni})$$

where

C_i = number of credits for the i^{th} course

G = grade point obtained in the i^{th} course
 C_{ni} = number of credits for the i^{th} course in the n^{th} semester
 M_{ni} = marks for the i^{th} course in the n^{th} semester
 G_{ni} = grade point for the i^{th} course in the n^{th} semester
 n = number of courses offered by student over the semesters.

1.18 Conversion of percentage of marks to grade points:

The marks obtained by a student in a course shall be indicated by a grade point and a letter grade as follows:

Marks	Grade points	Grade	Performance
80 & Above	10	O	Outstanding
70-79.99	9	A+	Excellent
60-69.99	8	A	Very Good
55-59.99	7	B+	Good
50-54.99	6	B	Above Average
45-49.99	5	C	Average
40-44.99	4	D	Pass
Less than 40	0	F	Fail

1.19 Successful Candidates shall be classified as under:

CGPA	Performance
80 & Above	Outstanding
70-79.99	Excellent
60-69.99	Very Good
55-59.99	Good
50-54.99	Above Average
45-49.99	Average
40-44.99	Pass
Less than 40	Fail

1.20 The ranks of the students in the M.A. examination shall be decided on the basis of the CGPA. A rank certificate will be issued to the first three rank holders.

1.21 The F grade once awarded to a student stays in the grade card of the student and shall not be deleted even when he/she passes the course successfully later. The grade acquired later by the student shall be indicated in the grade sheet of the subsequent semester in which the candidate has appeared.

1.22 The grade card issued at the end of the semester to each student shall contain the following:

- a. The credits earned in the particular semester and the cumulative credits from a previous semester ,
- b. The performance in each course indicated by the letter grade

- c. The Grade Point Average (GPA) of all the courses registered for that semester
- d. The Cumulative Grade Point Average (CGPA)
- e. The overall class, after completing the programme will be based on the CGPA and will appear only on the grade card for the fourth semester.
- f. Reflection of audit courses.

1.23 After the examination, the concerned teacher shall show the assessed answer sheets to the students and submit the finalised mark-sheet within fifteen days of the end of the examination.

1.24 A student who feels aggrieved about the marks awarded to him/her shall have the following redressal mechanism: (i) The student will meet the examiner to discuss the grievance. (ii) Only in case the grievance is not redressed, the student shall have the option of applying for revaluation. Such an application must be made within a week of meeting with the teacher as in (i)². The result of the revaluation shall be conveyed to the student by the Office within a week.

1.25 The Statutory Examination Board will have the power to modify/amend/peal any or all rules mentioned above.

1.26 In the case of class improvement, the following hold:

- a. Improvement will be allowed only for the core courses, i.e., the 1st and/or 2nd semesters and only for those students who have secured less than a first class,
- b. All the papers in that semester will have to be attempted,
- c. Improvement can be undertaken either by appearing for a mid-semester examination of 40 marks and an end-semester exam of 60 marks or by appearing for the end-semester exam of 60 marks. In either case, the relevant examination fees will have to be paid by the student. In case of students who seek class improvement only by appearing for the end-semester exam of 60 marks, the 40 marks of the student will be carried forward from the original performance³. In either case, students opting for improvement will take the examinations along with regular students.
- d. The grade sheets incorporating the new improved class will be given to students on surrender of the earlier grade sheets for all the semesters. The student will retain the original result and the grade sheets if there is no improvement in the class obtained.

² The Director shall examine the case and appoint a second examiner if there is merit to the case. If there is a difference of 10% marks between the two assessments, or if the marks after revaluation lead to a change in the result of the student, the new (re-valued) marks will apply. A -no change in resultø will be communicated to the student by the Office, if the Director finds no merit in the case or if the change in marks is less than 10%.

³ regular examination for non-ATKT students and for students with ATKT from the mid-semester of the ATKT attempt

STUDENT SUPPORT

The students of M.A. programme are eligible for admission to the Post Graduate Diploma in Financial Engineering and Risk Management (PGDFERM), Post Graduate Diploma in Data Sciences (PGDDS), Post Graduate diploma in Quantitative Finance (PGDQF), Post Graduate Diploma in Health Insurance (PGDHI), Post Graduate Diploma in Insurance Management (PGDIM), for which a limited number of free-ships are available based on merit and need. For more details students are requested to contact the Superintendent in the Office.

Ph.D. Course Work (18 credits)

A student will be allowed to seek provisional admission for the Ph.D. course after qualifying the PET conducted by the University.

This will be an 18 months course, conducted on all Saturdays (afternoon-evening). A student who has enrolled for a Ph. D will be given provisional admission which will be confirmed after clearing the examination at the end of the course.

Students who have passed the M.A. programme of the Mumbai School of Economics & Public Policy, University of Mumbai as well as those who have already studied the material covered in Quantitative Techniques can be exempted from the attendance requirement specifically for that module. Students who have passed the Masters degree from the Mumbai School of Economics & Public Policy will also be exempted from the attendance requirement for module 3 &5.

1. Methodology (2 credits)

The nature of scientific propositions, positivism ,falsifiability and its critics, role and significance of assumptions, predictions versus understanding, Kuhn's position , methodological individualism and its critiques., theory-empirics relationship.

2. Quantitative Techniques (4 credits)

Introduction to Optimization (10 hours)

Introduction to Matrices (6 hours)

Random variables and their distribution, Estimators and their properties, sampling methods, different types of probability and non-probability samples (10 hours)

Tests of hypothesis, Z, Chi-square, F and t tests, non-parametric tests of hypothesis (6 hours)

Simple linear regression: estimation and inference, extension to multiple linear regression (10 hours)

Autocorrelation, Heteroskedasticity and Multicollinearity (6 hours)

3. Data bases of the Indian Economy (4 credits)

To be done jointly with Masters students in the course on Indian Economy semester III and IV.

4. Data skills for Research (4 credits)

Graphical presentation of data, Data analysis and presentation using Excel (10 hours)

Reading data in R, graphics in R, data manipulation in R, basic statistics, multiple linear regression, logistic regression in R, time series models in R (20 hours)

Using Stata for research (10 hours)

Questionnaire design for primary survey (8 hours)

5. Academic Writing (4 credits)

This module will consist of two workshops of 6 hours duration each and one essay to be written by the candidate under the supervision of the proposed guide on a topic directly related to the thesis. This essay can either be used as a part of the thesis provided the candidate successfully passes the coursework. The candidate will be required to present the paper to the Ph.D. committee constituted for the purpose, which will have two other recognised guides of the Department in addition to the guide of the concerned student as members. The candidate will have to make at least three presentations to the committee, the first after completing a period of 6 months post registration, the next after completing a year after registration and the third before the final submission of the paper.

The examination will consist of a 100 marks examination based on modules 1 and 2, a 100 marks practical examination based on modules 3 and 4, and one essay to be written as a part of the academic writing workshop. The essay will be graded by all members of the Ph.D. committee. The average of the marks (out of 100) given by the two examiners will be calculated in order to evaluate the essay. The candidate will have to qualify for 18 credits in order to have his/her admission to the Ph.D. programme confirmed. If a candidate gets an F grade in any of the four modules, he/she will be deemed to have not obtained any credits in that module. A student who fails to acquire 18 credits may be allowed to reappear for the course without appearing for PET, at the most for two additional attempts. Successful students will be issued a certificate after clearing the course work.