

University of Burdwan
Department of Economics

Syllabus for MPhil in Economics

2007-08 Session onwards

A. The MPhil Course shall follow a Semester system as per the following structure:

<i>Semester</i>	<i>Papers</i>		<i>Total Marks</i>
I	Four papers of 50 marks each <ul style="list-style-type: none"> • Research Methodology-I • Research Methodology-II • Optional-I • Optional-II 	<i>Optional Papers (any two from)</i> <ul style="list-style-type: none"> • Demography • Resource Economics and Sustainable Development • Financial Micro Economics • Social Choice Theory • Advanced Economic Theory 	200
II	Total 100 Marks <ul style="list-style-type: none"> • Seminar-I • Seminar-II • Term Paper-I • Term Paper-II Dissertation Work	Each Seminar and Term Paper shall carry 25 marks. Topics to be decided by the Departmental Committee. In addition, candidates are to start the Dissertation Work	100
III	<ul style="list-style-type: none"> • Dissertation and Viva-Voce 	Dissertation - 150 marks Viva-Voce – 50 Marks	100
Grand Total			500

The Detail Syllabus is described hereafter.

**MPhil in Economics
Compulsory Papers**

Research Methodology-I

(50 Marks)

Group A

Field Survey: Methodology and Application (25 Marks)

1. Selecting a research problem - literature, secondary empirical information and field survey; (5 Lectures)
2. Designing a field survey - the questionnaire. (5 Lectures)
3. Analysing the response and the report; (4 Lectures)
4. Dynamic Optimisation- the differences that the presence of time makes; (3 Lectures)
5. The variational value of the problem; (3 Lectures)
6. Calculus of Variation- the Euler's condition; (4 Lectures)
7. The Optimal Control Method (4 Lectures)

Reference

Kothari – Research Methodology and the reading material circulated.
Siberberg – Structure of Economics (Chapters on Time dependent Optimisation)
Lancaster – Mathematical Economics (Review Chapter on Calculus of Variation)
Chakraborti & Adhikary eds. Contemporary Economics a Brief Refresher Chapter by Chakraborti.

Group B

Appraisal of Development Projects (25 Marks)

1. **Structure of Cost Benefit Analysis;** (5 Lectures)
 - a. Definition of a project; Identification, Quantification & Valuation of Project Impacts; Concept of Social Rate of Discount; Application of NPV; Sensitivity
2. **Concept of Social Utility & Benefit;** (5 Lectures)
 - a. Aggregation of Preferences; Maximising Social Utility; Valuation of Benefits and Costs; Welfare Maximisation and Cost-Benefit Analysis; Derivation of Social Time Preference from Diminishing Marginal Utility of Consumption;
3. **Project Choice Formula;** (10 Lectures)
 - a. Net Present Value; Internal Rate of Return Criterion;
 - b. Project Choice under Risk & Uncertainty: Maximin Criterion; Minimax Criterion; Criterion of Pessimism; Laplace criterion; Hurwicz Criterion; Minimax Regret Criterion
4. **Project Evaluation** (10 Lectures)
 - a. CPM and PERT

**MPhil in Economics
Compulsory Papers**

Research Methodology-II
(50 Marks)

Econometrics and Software Application

1. Tests in Regression Models (4 Lectures)
 - (i) Test of Restrictions by LR, Wald and LM Test.
 - (ii) Test of Structural Shifts by Spline Function Approach.
 - (iii) Measuring Stability by (i) Hansen's Test and (ii) Brown and Evans' Test

2. Time Series Regression (4 Lectures)
 - (i) Principles of ARIMA Modeling
 - (ii) Estimating ARIMA Models
 - (iii) ARMA Equation Diagnostics – Roots, Correlogram, Impulse Response, Q-statistics

3. Vector Autoregression and Error Correction Models (4 Lectures)
 - (i) Unrestricted VAR
 - (ii) Structural or Restricted (Identified) VAR: Specifying the Identifying Restrictions – Short run and Long run
 - (iii) Cointegration Test
 - (iv) Vector Error Correction (VEC) Models

4. Basic Panel Analysis: (4 Lectures)
 - Panel-Specific Analysis:
 - (i) Time Series Graphs,
 - (ii) Panel Unit Root Tests:
Tests with Common Unit Root Process
 - (a) Levin, Lin, and Chu method; Breitung method; Hadri panel unit root test
 - Tests with Individual Unit Root Processes
 - (a) Im, Pesaran, and Shin test (b) Fisher-ADF and PP tests

5. Pooled Estimation (4 Lectures)
 - (i) Cross-section and Period Specific Regressors
 - (ii) AR Specifications
 - (iii) Fixed Effects
 - (iv) Random Effects
 - (v) Generalized Least Squares Specification:
 - (a) Cross-section specific heteroskedasticity, (b) Period specific heteroskedasticity, (c) Contemporaneous covariances and (d) Between period covariances.
 - (vi) Panel Equation Testing:
 - (a) Omitted Variables Test, (b) Redundant Variables Test, (c) Fixed Effects Testing and (d) Hausman Test for Correlated Random Effects

6. Generalized Method of Moments (4 Lectures)
7. Dynamic Panel Data techniques (4 Lectures)
8. The Box-Cox Regression Model (4 Lectures)
9. Linear SURE Models Estimated by Zellner's Feasible GLS Method (4 Lectures)
10. Qualitative Dependent Variable Techniques. (4 Lectures)
 - (a) The Multinomial Logit Model
 - (b) The Multivariate Probit Model
 - (c) Ordered Probit and Logit Models
 - (d) Nested Logit Models
 - (e) Variants of the Tobit Model
 - (f) The Tobit Model for Censored Data

11. Switching Regression Models (4 Lectures)
12. Measuring Inefficiency (4 Lectures)
 - (i) Farrell's Approach
 - (ii) Deterministic Frontier Models: (a) Linear and Quadratic Programming Method (b) COLS (c) MOLS
 - (iii) Stochastic Frontier Regression Models: (a) Normal - Half Normal model (b) Normal - Exponential model (c) Normal - Truncated Normal model
 - (iv) DEA

MPhil in Economics
Optional Papers

DEMOGRAPHY

(50 Marks)

UNIT I: Measurement of Population (6 Lectures)

Arithmetic growth - Geometric law of population growth - Exponential growth of population - Logistic growth - Models of Population growth – Malthus - Leibenstein - Models of Demography - the Stable Population Model.

UNIT II Fertility (8 Lectures)

Measures of fertility – CBR, GFR, TFR, cumulative fertility rate, child women ratio, gross and net reproduction rate. The pattern of age specific fertility rates – Pearsonian type 1 curve and its fertility projection potentials- Brass polynomial Model-Coal Trussel Model- Easterlin's and Becker's theories of fertility and their critical evaluation.

UNIT III: Mortality (6 Lectures)

Basic measures – CDR, age specific death rate – Early neonatal, neonatal and infant /child mortality rate – Brass technique-Coale and Russel Method-Preston and Polloni Method.

UNIT IV: Life Table (10 Lectures)

Life table, complete and abridged life table and their construction – Models of life table-UN Model tables-Coale and Demeny's Model table-Brass Model. Trends of mortality in developed and developing countries – Determinants of mortality.

UNIT V: Migration and Urbanization (15 Lectures)

Definition and Concept-Measures of migration- internal migration- Residual Method-Survival rate Method-Migration Rates and ratio's- Estimation of international migration – Migration Models-Ravenstein's Law of Migration-Zipf's Gravity of Migration-Lee's theory of Migration-Todaro Model-Stouffer's Model – L-F-R Model of Development theory-Cost-Benefit Model Analysis-Mover-Stayer Model of migration.

Urbanization, its measures - Urbanization and development – Historical patterns for developing and developed countries – Factors promoting urbanization in the developing countries – Problems of urbanization in less developed countries.

UNIT VI: Quantitative Techniques for Demography (5 Lectures)

Multivariate Regression analysis- Path Analysis-Cluster Analysis

References

1. Pathak, J.B and F. Ram: Techniques of Demographic Analysis, Himalaya Publishing House
2. Saxena, P.C and P.P Talwar(edi) 1988 : Recent Advances in the Techniques for Demographic Analysis, Himalaya Publishing House
3. Shryock, H., *The Methods and Materials of Demography*.
4. Bogue, D J., *Principles of Demography*
5. Barclay, G W., *Techniques of Population Analysis*
6. United Nations Publications, *The Determinants and Consequences of population Trends* (Series No.50)
7. Coale, A. J. and E. M. Hoover, *Population Growth and Economic Development in Low Income Countries*, Oxford University Press.
8. Becker, G. S., *An Economic Analysis of Fertility in Demographic and Economic Change in Developed Countries*, A Report of NBER, Princeton University Press, Princeton, 1960.
9. Easterlin, R. A., *An Economic Framework for Fertility Analysis Studies in Family Planning*, 1975.
10. Leibenstein, *Economic Backwardness and Economic Growth*, Wiley, New York, 1957.
11. Leibenstein, *An Interpretation of the Economic Theory of Fertility, Promising Path or Blind Alley*, The Journal of Economic Literature, XII (2), 1974.
12. Agarwala, S. N., *India's Population Problems*, Tata - Mcgraw Hill, New Delhi.
13. Srinivasan, K., *Basic Demographic Techniques and Applications*, Sage Publications, New Delhi, 1992.
14. Bhende and Kanitkar, *Principles of Population Studies*, Himalaya Publishing House, Delhi, 2003.

MPhil in Economics
Optional Papers

RESOURCE ECONOMICS & SUSTAINABLE DEVELOPMENT

(50 Marks)

1. Environment asset as pure public good; market failure and public good, optional allocation of resources for public good. (7 lectures)
2. Optional extraction of resources – A Survey, Exploration and extraction of exhaustible resources, common property resources. (7 lectures)
3. Sourcewise classification of energy, Modelling energy demand. The reference energy system ; Factors affecting energy demand. (7 lectures)
4. Trade-off between exploitation of environment for development and environmental conservation ; Modelling environmental preservation and development. (7 lectures)
5. Montreal Protocol : Statement and explanation, Modelling of the benefits of Co-operative treaty compared to non-co-operation. (7 lectures)
6. Modelling of the economics of green house effect and climate-change. Global warming problem (7 lectures)
7. Concept of sustainable development, Environmental accounting and green NNP, The concept of green NNE as linearised Hamiltonian. (7 lectures)

**MPhil in Economics
Optional Papers**

FINANCIAL ECONOMICS

(50 Marks)

- 1. General Financial Markets** *(12 Lectures)*
 - a. Characteristics
 - b. Information and Market Efficiency
 - c. Asset Pricing Models

- 2. Forwards & Futures** *(12 Lectures)*
 - a. Features of Forward and Futures
 - b. Pricing Models
 - c. Hedging Strategies

- 3. Options** *(12 Lectures)*
 - a. Options Terminology
 - b. Options Pricing – Black-Scholes Model
 - c. Trading Strategies

- 4. Interest Rate** *(12 Lectures)*
 - a. Interest Rate Swaps
 - b. Currency Swaps
 - c. Complex Swaps – Valuations

References

Bodie and Merton: Finance, Prentice Hall

J.C. Hull: Options, Futures & Other Derivatives, Prentice Hall

Campbell, Lo and Mackinlay: The Econometrics of Financial Markets, Princeton University Press

Elton and Gruber: Modern Portfolio Theory and Investment Analysis, John Wiley & Sons.

MPhil in Economics
Optional Papers

SOCIAL CHOICE THEORY

(50 Marks)

1. ***Relevance of Social choice Theory*** (10 Lectures)
Need for community decisions and its dilemma-evaluations of policies or projects that would affect welfare of the community-implications for the mainstream economic thinking-some examples (provision of health care, education, losers and gainers in economic growth process, gender issues, various forms of social and non-economic discriminations, environmental perspectives etc.)
2. ***Axioms of Individual Choice-The Basis of Social Choice theory*** (10 Lectures)
Axiomatic treatment of Individual preferences- Different definitions of Rationality-Choice sets, Maximal sets and other related mathematical concepts-importance of morality-“Rational Fools”
3. ***Positive Social Choice*** (10 Lectures)
Public choice in a direct democracy-Basic concepts of preference revelations-Public Choice in a representative democracy-Exit, voice and loyalty-government and bureaucracy
4. ***Normative Social Choice*** (10 Lectures)
Pareto rules and its extensions-normative evaluations of the existing public choice mechanisms-Arrow’s impossibility and its extensions-Rights and justice-interest, well-being and advantage
5. ***Some applications of the Social Choice Theory*** (10 Lectures)
Famine and entitlement-Study of some famines or famine like situations-Poverty and inequality-Development as freedom- Evaluation of globalization and reform policies-Labour market as a social phenomenon-social choice theoretic interpretation of unemployment-description as choice-basic incompleteness in the welfare theoretic evaluations

References

- Basu K. and Foster J.E. On measuring literacy
Bose, Rakshit and Sinha (eds): Issues in economic Theory and Public policy
Mascollel and Greene: Microeconomics
Mueller: Public Choice
Sen and Dreze (eds): Hunger and Public action
Sen: Choice, Freedom and welfare
Sen: Choice, welfare and Measurement
Sen: Collective Choice and social welfare
Sen: Development as freedom
Sen: Poverty and famines: An essay on Entitlement and Deprivation.
Stiglitz: Public Economics
Suzumara and Pattnaik (eds): Essays in honour of Amartya Sen

MPhil in Economics
Optional Papers

ADVANCED ECONOMIC THEORY

(50 Marks)

2. *Adverse selection, Signalling and Screening* (10 Lectures)
Introduction- Informational Asymmetries and Adverse Selection-Signaling-Screening.
3. *The Principal Agent Problem* (10 Lectures)
Introduction-Hidden action (Moral Hazard)-Hidden Information (and Monopolistic Screening)-Hidden actions and Hidden Informatins (Hybrod Models)
4. *Social Choice Theory* (10 Lectures)
Need for community decisions and its dilemma - Axiomatic treatment of Individual preferences - Different definitions of Rationality - Choice sets, Maximal sets and other related mathematical concepts - importance of morality - "Rational Fools" - Pareto rules and its extensions - normative evaluations of the existing public choice mechanisms - Arrow's impossibility and its extensions - Rights and justice - interest, well-being and advantage
5. *Axiomatic Bargaining Theory* (10 Lectures)
The Axiomatic Bargaining Approach - Nash Solution - Kalai-Smorodinsky solution - Coalitional Bargaining and Shapley value.
6. *Dynamic Issues in Economics* (10 Lectures)
Intertemporal Choice - Intertemporal Production - Overlapping Generations - Tâtonnement and Learning - Introduction to chaos theory - Some economic models with chaos

References

Barro and Salai-Martin: Growth Theory
Bose, Rakshit and Sinha (eds): Issues in economic Theory and Public Policy
Mascollel, Whinston, Green: Microeconomic Theory
Mueller: Public Choice
Romer: Advanced Macro-economics
Ronald Shone: Economic Dynamics
Sen: Choice, welfare and Measurement
Sen: Collective Choice and social welfare
Varian: Microeconomics