DEPARTMENT OF ECONOMICS

UNIVERSITY OF BURDWAN

Syllabus for 1 year Post Graduate Programme in Economics under Curriculum and Credit Framework for Postgraduate Programme (CCFPP) as per NEP2020

with effect from 2027-2028 session

Post Graduate Programme in Economics leading to MA / MSc degree in Economics

A. Programme Outcome (PO):

Develop conceptual knowledge of the core domain of study

Develop decision making capabilities (intellectual, organizational, and personal) using domain knowledge

Develop effective communication & interaction skills for dissemination of domain knowledge & decisions

Ability to engage in independent and life-long learning of core domain & related issues

B. Programme Specific Outcome (PSO):

Develop conceptual understanding of the fundamental mechanism of economic processes at individual and macro level

Form a clear idea about the working of different sectors and markets that constitute an economy

Ability to working with real life data to understand outcomes of policies at local, national and global level

Ability to identify and suggest optimum policies at micro and macro level to maximise benefits

Post-graduate Programme in Economics – Options, Entry & Exit

Programme	*Option*	*Structure*	*Eligibility*	*Exit Points*
1-Year PG	1	Coursework in Ist semester and Research Project / Dissertation in IInd semester	• 4-yr Bachelor's degree with Honours / Honours with Research in Economics (or allied subjects along with qualifying in National/University Admission Test • Number of Students allowed for this option will depend on Number of available Faculty members • Allotment of guide shall be made with consent of concerned faculty member	**Single Exit Point** After 2 semesters with Masters Degree in Economics
	2	Coursework in both semesters I and II	• 4-yr Bachelor's degree with Honours / Honours with Research in Economics (or allied subjects along with qualifying in National/University Admission Test	
	3	No Coursework; Research Project / Dissertation in both Ist and IInd semesters	• Entry as above • Number of Students allowed for this option will depend on Number of available Faculty members • Allotment of guide shall be made with consent of concerned faculty member	

- For students pursuing Option-2, i.e. Coursework in both semesters, there shall be a Core compulsory course in Final Semester in the nature of Field Survey / Project / Dissertation of not less than 4 credits
- Class Hour distribution shall be 15 Lecture Hours per semester for 1 credit

Credit Structure of 1 Year PG Programme

Program	*Papers*	*First Semester*	*Second Semester*	**Total Credits**
1 year PG programme with Coursework in Ist semester and Research / Dissertation in IInd semester	*Core Papers (compulsory)*	**12**	**-**	**12**
	Discipline Specific Major Elective Papers	**8**	**-**	**8**
	Minor Elective Paper (Non-Departmental)	**-**	**-**	**-**
	Research Project / Dissertation	**-**	**20**	**20**
	Aggregate	**20**	**20**	**40**
1 year PG programme with Coursework only	*Core Papers (compulsory)*	**12**	**12**	**24**
	Discipline Specific Major Elective Papers	**8**	**8**	**16**
	Minor Elective Paper (Non-Departmental)	**-**	**-**	**-**
	Research Project / Dissertation			
	Aggregate	**20**	**20**	**40**
1 year PG programme with Research / Dissertation only	*Core Papers (compulsory)*			
	Discipline Specific Major Elective Papers			
	Minor Elective Paper (Non-Departmental)	**-**	**-**	**-**
	Research Project / Dissertation	**20**	**20**	**40**
	Aggregate	**20**	**20**	**40**
	Marks	**250**	**250**	**500**

In addition, students have to complete a 2-credit Compulsory Course on Community Engagement in the 2nd semester. However, this shall not be taken into consideration in the calculation of SGPA and CGPA

8 digit Paper Code System:

Whether 2year PG or 1year PG	4 digit subject letter code	Semester Number	Whether Major or Minor	Course Number
PG2 or PG1	ECON	1 or 2 or 3 or 4	Major 1 / Minor 2 / Project etc 3 / Community Engagement 4	1/2/3/4/5
Example:	**1 year PG / 1st semester / Major /Course 1:**			
PG1	ECON	1	01	1
Example:	**1 year PG / 2nd semester / Major /Course 4:**			
PG1	ECON	2	01	4
Example:	**1 year PG / 2nd semester / Major /Dissertation**			
PG1	ECON	2	03	1
Example:	**2 year PG / 4th semester / Community Engagement**			
PG1	ECON	4	04	1
Example:	**1 year PG / 4th semester / Community Engagement**			
PG1	ECON	2	04	1

Structure of 1 year PG Programme in Economics (with Coursework)
(The contents of the syllabus is same as 3rd and 4th semesters of 2YPGP)
First Semester
(common for both 1YPGP with Coursework and 1YPGP with Coursework & Research in IInd sem)

Sem	Course Type	Course Code	Course Title	L-T-P	Credit	Marks	Marks Th-Pr-IA
I	Core Course **Level: 500 - 599**	PG1ECON 1011	**International Economics**	3-1-0	4	50	40-0-10
I	Core Course **Level: 500 - 599**	PG1ECON 1012	**Game Theory & Behavioural Economics**	3-1-0	4	50	40-0-10
I	Core Course **Level: 500 - 599**	PG1ECON 1013	**Public Economics**	3-1-0	4	50	40-0-10
I	Major Elective Course **Level: 500 - 599**	PG1ECON 1014	**Elective-I: (any one)**	3-1-0	4	50	40-0-10
			1014A: Economics of Sustainable Development				40-0-10
			1014B: Agricultural Economics-I				40-0-10
I	Major Elective Course **Level: 500 - 599**	PG1ECON 1015	**Elective-II: (any one)**	3-1-0	4	50	40-0-10
			1015A: Applied Econometrics				40-0-10
			1015B: Agricultural Economics-II				
	Total Ist Sem				**20**	**250**	

Second Semester (for 1YPGP with Coursework)

Sem	Course Type	Course Code	Course Title	L-T-P	Credit	Marks	Marks Th-Pr-IA
II	Core Course **Level: 500 - 599**	PG1ECON 2011	**Economics of Growth**	3-1-0	4	50	40-0-10
II	Core Course **Level: 500 - 599**	PG1ECON 2012	**Recent Issues in Indian Economy**	3-1-0	4	50	40-0-10
II	Elective Course **Level: 500 - 599**	PG1ECON 2013	**Elective-III: (any one)**	3-1-0	4	50	40-0-10
			2013A: Advanced Financial Economics				40-0-10
			2013B: Regional Economics				40-0-10
			2013C: Social Capital				40-0-10
			2413D: Rural Development				40-0-10
II	Major Elective Course **Level: 500 - 599**	PG1ECON 2014	**Elective-IV: (any one)**		4	50	40-0-10
			2014A: Advanced Econometrics	3-1-0			40-0-10
			2014B: Economics of Climate Change	3-1-0			40-0-10
			2014C: Data Analytics	0-0-4			0-40-10
II	Core Course **Level: 500 - 599**	PG1ECON 2015	**Project: Socio Economic Survey**	0-0-4	4	50	0-40-10
II	**Core Course**	PG1ECON 2041	**Community Engagement**	0-0-2	2#	50	0-40-10
	Total IInd Sem				**20**	**250**	
	Total (I-II) sem				**40**	**500**	

 # Non Credit Course, Credit reflected here is for Evaluation purpose only. However, this shall not be taken into consideration in the calculation of SGPA and CGPA

Structure of 1 year PG Programme in Economics (with Coursework & Research in IInd sem)

First semester is common with 1YPGP with Coursework

Second Semester
(for 1YPGP with Coursework & Research in IInd sem)

Sem	Course Type	Course Code	Course Title	L-T-P	Credit	Marks	Marks Th-Pr-IA
II	**Dissertation**	PG1ECON 2031	**Dissertation**	0-0-20	20	150+100=250@	0-250-0
	Core Course	PG1ECON 2041	**Community Engagement**	0-0-2	2#	50	0-40-10
	Total				**40**	**500**	

@ **Preparation & Submission of Research Thesis/ Project Report (12 Credits)-150 Marks, Seminar Presentation (4 credits, 50 Marks) & Viva-voce (4 Credits, 50 Marks)**

\# **Non Credit Course, Credit reflected here is for Evaluation purpose only. However, this shall not be taken into consideration in the calculation of SGPA and CGPA**

Structure of 1 year PG Programme in Economics (with only Research in Ist &IInd sem)

NO COURSEWORK

Sem	Course Type	Course Code	Course Title	L-T-P	Credit	Marks	Marks Th-Pr-IA
I	**Dissertation**	PG1ECON 1031	**Dissertation**	0-0-20	20	150+100=250@	0-250-0
II	**Dissertation**	PG1ECON 2031	**Dissertation**	0-0-20	20	150+100=250@	0-250-0
	Core Course	PG1ECON 2041	**Community Engagement**	0-0-2	2#	50	0-40-10
	Total				**40**	**500**	

@ **Preparation & Submission of Research Thesis/ Project Report (12 Credits)-150 Marks, Seminar Presentation (4 credits, 50 Marks) & Viva-voce (4 Credits, 50 Marks)**

\# **Non Credit Course, Credit reflected here is for Evaluation purpose only. However, this shall not be taken into consideration in the calculation of SGPA and CGPA**

Template for Research Project / Dissertation

- Within 7 days of commencement of the Final Semester, all eligible and approved students will be allocated Supervisors as per availability and consent of faculty member.
- Topics will be submitted by such students within 15 days of commencement of the Semester to the HoD office forwarded duly by each allocated Supervisor.
- The Synopsis and outline of study shall be presented by the student within 45 days of commencement of the semester
- Students are to simultaneously start working on their Research Project / Dissertation
- Periodic assessment of data collection, analysis and report writing would be carried out by each allocated Supervisor
- End Semester Examination will comprise of submission of Project Report / Dissertation (at least 7 days prior to due date of Viva-voce) and Viva-voce and/or Presentation in front of the Examiners (at least one external examiner should be present)
- Format for Project Report / Dissertation shall be as follows:
    - Preliminary Section (of 1500-2000 words) providing Background, Conceptual frame, Literature review, Identification of research gaps, Objectives, Importance of literature review, Methods/ procedure /steps, Data sources.
    - Main Section (of 7000-7500 words) with subsections on Results & Discussion
    - Concluding section (of 500-1000 words) with focus on Policy Implications
- Format for Report on Community Engagement and Social Outreach shall be as follows:
    - Preliminary Section (of approx. 500 words) providing Background of Study area, Identification of Problems and Action areas;
    - Main Section (of 1000-1500 words) on Work done by the student, supported by documentary evidence;
    - Concluding section (of approx. 500 words) on Impact of work done by the student

The above guidelines are common to all the candidates. However depending on the research topic, the candidate and supervisor have the freedom to work out the micro details.

Question Pattern for Theoretical Papers

- In each paper of 75 marks the End-semester examination shall be of 60 marks. There shall be 9 questions of 10 marks each from which 6 questions are to be answered by the candidates (Time 3 hours).
- In each paper of 50 marks the End-semester examination shall be of 40 marks. There shall be 6 questions of 10 marks each from which 4 questions are to be answered by the candidates (Time 2 hours).
- In each paper of 50 marks which has two groups, the End-semester examination shall be of 40 marks. There shall be 3 questions of 10 marks from each group. Candidates are to answer 4 questions taking 2 from each group. (Time 2 hours).

Marking Pattern for Socioeconomic Survey & Project Paper PG2ECON4015 / PG1ECON2015

- Computer Applications (Internal Assessment) – 10 marks
- Socio-economic Survey & Report Writing – 15 marks
- Presentation of Survey Report – 15 marks
- Final Viva-Voce – 10 marks

Detailed Syllabus

1 year Post Graduate Programme in Economics under NEP2020

with effect from 2027-2028 session

Core Paper

PG1ECON1011

INTERNATIONAL ECONOMICS

Credit: 4

Full Marks: 50

Lecture Hours: 60

Course Objective:

To understand the processes of international trade and flow of capital and how international flows encourage or discourage development processes in different sets of countries

Course Outcome

Ability to understand & analyse the working of international economic processes, transactions and the impact of trade on development

1. Pure Theory of International Trade (8 Lectures)

- Overview of Classical Trade Models
- Generalization of the Ricardian Model of Trade with multi-commodity and multi-country cases.
- Incomplete specialization -terms of trade and wage inequality in developing economies.
- Specific Factors, intermediate inputs, public goods and non-traded goods in international trade: Jones' model.
- Exchange models

2. Trade and Development (8 Lectures)

- Development in the open economy- Theory of immiserizing growth.
- Foreign capital and welfare- the Brecher-Alejandro (1977).
- Evolution of Trade Policies- emergence of trading blocs..

3. Intra-Industry Trade, Strategic Trade Theory and FDI (10 Lectures)

- Causes of Emergence and Measurement of Intra-Industry Trade.
- Trade under imperfectly competitive market with increasing returns (Krugman's Model), Pattern and gains;
- Intra-industry Trade; Returns to scale, product differentiation, monopolistic competition and basis of trade; Implications for standard theorems on international trade; Grubel-Lloyd Index.
- Multinational Corporations. Cartels and the interests of producing and consuming countries, monopoly and policies of exporting and importing countries, industrial policy and market rivalry

4. Trade and National Welfare (5 Lectures)

- Effects of Trade Policy on National Welfare: producing and consuming countries, small and large economies, policies of exporting and importing countries.

5. Theory of Commercial Policy (8 Lectures)

- Tariffs and Quotas policy
- Trade Policy with Domestic Distortions: Tariffs and The Theory of Optimum Subsidy
- The political economy of protection; The infant industry argument,
- Trade Controls in Practice,
- Non-optimality of free trade, optimal trade policy and the theory of the second best.

6. Trade Policies and Imperfect Competition (8 Lectures)

- Monopolistic competition models of trade, Love-for-Variety preferences, Gains from trade, Tariff versus quota under monopoly, Strategic trade policy: Cournot and Bertrand competition, Voluntary import expansion and export restrictions
- **Application**: In search of empirical support for trade and development - An introduction to empirical trade theory, Trade and economic development in the Newly Industrialized Countries.

7. International Political Economy (8 Lectures)

- WTO and the non-tariff barriers, Trade and environment; Trade, labour standards and human rights,
- Formation of regional trade blocs and barriers to free flows of trade.
- Asian Financial Crisis of 1997, Global Financial Crisis of 2008 and Euro Zone Crisis-Causes and Impact

8. Empirical Issues in International Economics (8 Lectures)

- **Gravity, Distance and International Trade** - Newton's Law of Gravitation in Economics - Intuitive Idea of Gravity Model in Economics-empirical Gravity Model -Constituents of the Gravity Model - Illustration.
- **Outsourcing & International Trade** - Outsourcing or Arm's length trade-meaning and significance- Gains from Outsourcing in a One-Good Model-Gains from Outsourcing in the Presence of Trade.
- **Trade Theory and the Role of Time Zones** - Time Zone Difference as a source of Trade and Comparative Advantage – a simple model.

References

Bhagwati, J., A. Panagariya, and T. Srinivasan. Lectures on International Trade (2nd edition), MIT Press, 1998

Bhagwati, Jagdish - Writings on International Economics‖, edited by V.N. Balasubramanyam, Oxford University Press.

Bhagwati, Jagadish, Arvind Panagarya and T.N Srinivasan (2004): The Muddles over Outsourcing, JEP, Vol.18, No. 4, pp. 93-114

Caves, R.E., Frankel, J.A. and Jones, R.W. (1999), World Trade and Payments, 8th Edition, AddisonWesley.

Chacoliades, M. - Pure Theory of International Trade‖

Cherunilam, Francis (2006), International Economics, 4th Edition, Tata Mcgraw-Hill, New Delhi

Claassen Emil-Maria, (1996) Global Monetary Economics, Oxford University Press.

Feenstra. R., Advanced International Trade: Theory and Evidence, Princeton University Press, 2009

Findlay, R., Jones, R.W. and Kenen (ed) - Handbook of International Economics, vol. I and vol. II, North Holland, 1984.

Frankel, Jeffrey, (1997), Regional Trading Blocs in the World Economic System, Institute for International Economics, Washington, DC

Grossman, G. (ed): Imperfect Competition and Trade Theory, MIT Press, 1994

Helpman & Krugman (1989): Trade Policy & Market Structure, MIT Press

Kerr, William A. and James D. Gaisford (edited), 2007. Handbook on International Trade Policy. Edward Elgar Publishing

Klasen, Andreas (2020). The Handbook of Global Trade Policy, John Wiley & Sons

Krugman P.R. and Obstfed D. (1994), International Economics: Theory and Policy. Third Edition.Harper Collins. New York

Krugman, Paul - Rethinking International Trade, 1994, MIT press.

Lukauskas, Arvid, Robert M. Stern, and Gianni Zanini, 2013.Handbook of Trade Policy for Development. Oxford Scholarship publishing

Mandal, Biswajit and Prasad, Alaka Shree (2018): A simple model of time zone differences, virtual trade and informality, MPRA,

Marjit, S. and R. Acharyya (2002) - International Trade, Wage Inequality and the Developing Economies -a general equilibrium approach‖, Springer-Verlag.

Narlikar, Amrita (2005): The World Trade Organization-A very short introduction.

Pal, Iman and Saibal Kar (2021): Gravity Models in International Trade: An Exploration in Econo-Physics , South Asian Journal of Macroeconomics and Public Finance 10(2) 72–104)

Salvatore, Dominick, International Economics, 6th Edition (1998) Prentice Hall, 7th and 8 th Editions (2001 and 2004) John Wiley & Sons.

Sawyer, W.C. and Sprinkle R.L. (2003), International Economics, Prentice-Hall of India, New Delhi.

Sodersten, Bo and Reed, G. (1994), International Economics, Macmillan Press Ltd., London

Zhang Peter G. (1998), IMF & Asian Financial Crisis, World Scientific, Singapore

Core Paper

PG1ECON1012

GAME THEORY & BEHAVIOURIAL ECONOMICS

Credit: 4

Full Marks: 50

Lecture Hours: 60

Course Objective:

To make students capable of understanding the nuances of behavioural economics, bargaining and competitive economic strategies

Course Outcome

Ability to understand & analyse the structure, performances, behaviour and decision making of individuals, firms and markets

1. **Static Games of Complete Information (9 Lectures)**
   - Cooperative and Non-cooperative Games
   - Normal (Strategic) form representation of non-zero sum games: Iterated elimination of strictly dominated strategies- concept of Nash equilibrium-Examples of pure Strategy equilibria: Non-existence of pure strategy equilibria; IERSDS, rationalizability and correlated equilibrium Prisoners'
   - Dilemma-Multiple Nash Equilibria; Cournot model of duopoly – final offer arbitration, the problem of the commons- mixed strategies , Trembling hand perfect equilibrium.
2. **Dynamic form representation of complete information games (9 Lectures)**
   - Extensive Form Games; multistage Games; Extensive Form, Multistage Games with observed actions - Commitments; Strategies and Equilibria in Extensive Form games concept of backward induction - Stackelberg game - wages and employment in a unionised firm.
   - Two stage game of complete but imperfect information – concept of sub-game; concept of information set; Sub game perfect Nash equilibrium - three period bargaining game - two stage repeated games; Repeated games with observed actions Infinitely repeated games – concept of trigger strategy- folk theorem
3. **Static game with incomplete information (9 Lectures)**
   - Cournot competition under asymmetric information.- normal form representation of static Bayesian games, concept of static Bayesian Nash equilibrium- battle of the sexes game in the framework of static game with incomplete information.
4. **Dynamic game with incomplete information (8 Lectures)**
   - Concept of sequential Rationality
   - Concept of perfect Bayesian equilibrium.
5. **Behavioural Game Theory (6 Lectures)**
   - Game theory & behavioural game theory;
   - Irrational players and equilibrium
6. **Dependent Preferences (5 Lectures)**
   - Kahneman/Tversky classic experiments;

- Prospect theory;
- Market implications: labour supply, marketing, industrial organization

7. Choice Over Time (7 Lectures)

- Samuelson's exponential-discounting;
- Self-control and hyperbolic discounting;
- Harmful substances and government policy;
- Anxiety, optimism & anticipation;
- Misperception of utility.

8. Bounded Rationality (7 Lectures)

- Heuristics and biases;
- Views of bounded rationality

References

Ariely, Dan, Predictably Irrational: The Hidden Forces That Shape Our Decisions.

Binmore, Ken - Fun and Games

Camerer, Colin, George Loewenstein and Matthew Rabin, Advances in Behavioral Economics.

Fudenberg, D., and J. Tirole, - Game Theory

Gibbons : - Introduction to Game Theory

Kagel, John and Alvin Roth, The Handbook of Experimental Economics.

Kahneman,Daniel,*Thinking Fast and Slow.*

Kreps, D. - Game Theory: A Non technical

Levitt, Steven D and Stephen J Dubner, Freakonomics: A Rogue Economist Explores the Hidden Side of Everything, Kindle Edition

Rubinstein,Ariel*Modelling Bounded Rationality,* MIT press 1998 David Just, *Introduction to Behavioral Economics*.

Shy, Oz- Industrial Organization.

Thaler, Richard H and Cass Sunstein, Nudge: Improving Decisions about Health, Wealth and Happiness.

Thaler, Richard H, Misbehaving: The Making of Behavioural Economics.

Thaler,Richard H, The Winner's Curse.

Wilkinson, Nick and Matthias Klaes, *An Introduction to Behavioral Economics.*

Core Paper

PG1ECON1013

PUBLIC ECONOMICS

Credit: 4

Full Marks: 50

Lecture Hours: 60

Course Objective

The objective of this course is to study government intervention in the economy, with a focus on how tax and expenditure policies influence resource allocation, income distribution, and overall economic welfare. At the postgraduate level, public economics emphasizes microeconomic foundations, welfare economics, and applied policy analysis, often using mathematical tools and econometric techniques.

Course Outcome

The expected course outcomes are – Ability to understand & analyse the performances, behaviour and decision making of the governmental side of the economy; Ability to evaluate economic policies of governments across different sets of countries.

I. Foundational Theoretical Frameworks

1. Fundamentals of Welfare Economics (5 lectures)

- Fundamental Theorems of Welfare Economics, The Pareto criterion and limitations in real-world applications.
- Social welfare functions: Utilitarian vs. Rawlsian perspectives.

2. Market Failure and Government Intervention (7 lectures)

- Public Goods: Non-rivalrous and non-excludable goods; Free-rider problem; Samuelson Rule: MRS = MRT for efficient provision of public goods.
- Externalities: Negative- Pollution, congestion; Positive- Education, Vaccination.
- Intervention: Pigouvian Taxes/Subsidies: Internalise externalities to restore efficiency; Coase Theorem: Role of property rights and transaction costs.

3. Government: Economic Agent (8 lectures)

- Role of Government – Allocation, Distribution and Stabilization functions.
- Public Budget – Kinds of Budget; Zero Based Budgeting; Concepts of Budget Deficit; Budget in India,
- Understanding of Public Policy related to Budget Expenditure

II. Optimum Taxation and Public Expenditure Theory

1. Taxation & Public Expenditure (10 lectures)

- Incidence of Taxation; Theory of Optimum Taxation; Income Tax and Commodity Tax; Elasticity & Buoyancy; Taxable Capacity; Tax Evasion; Efficiency Loss of Taxation
- Public Expenditure: principles, objectives, targets and achievements

2. Public Debt (6 lectures)

- Fiscal and Financial Policy as part of Macro Policy: Objectives, nature and instruments. Public Debt as Development Policy; Budget Deficit and Public Debt; Government Debt

Management; Types of Public Debt – Internal and External; Public Debt as Deferred Taxation; Burden of Public Debt

III. Public Policy

1. Public Goods and Public Policy (10 lectures)

- Concept of Public and Private Goods, Pure Public Goods, Public Goods provided by Private Company/Agents; Policy Design
- Local, Regional and Global Public Goods – concept, understanding and policy design
- Private, Public and Merit Goods; Non-Exclusion Principle
- Development Policy: Education & Health Policy, Innovation & R&D expenditure,
- Social Welfare – Social Security, Ageing and Pension, Health Insurance policy – public and private expenditure, PPP model

2. Fiscal Federalism (8 lectures)

- Fundamental Issue of Fiscal Federalism; Why have a Federal Structure – Stigler; Oates – Decentralisation Theorem; Theory of Clubs; Dynamics of Jurisdiction Formation; Optimal Federalism and Redistribution; Role of Grants-in-Aid.
- Fiscal Federalism in India

IV. Applications: Public Policy Analysis

1. Empirical Methods in Public Economics (8 lectures)

- Policy analysis: principles, methods, scale and applications - Cost-Benefit analysis, PPP model analysis
- Tools and Techniques: Difference-in-Differences (DiD), Regression Discontinuity Designs (RDD), Instrumental Variables (IV), Estimating behavioural elasticities (e.g., labour supply elasticity, taxable income elasticity)

2. Current Topics in Public Economics (8 lectures)

- Environmental Taxation and Climate Policy,
- Digital Economy and Taxation of Multinationals,
- Wealth and Inheritance Taxes: Rising inequality and policy responses,
- Universal Basic Income (UBI) and AI-driven labour displacement,
- Public Debt Sustainability in post-pandemic and ageing economies.

References

Abelson, Peter. (2018). *Public Economics: Principles and Practice*, 4th Edition, McGraw-Hill Publications, Sydney.

G. Myles. *Public Economics*, Cambridge University Press, 1995.

Harvey Rosen, Public Finance, McGraw Hill Publications, 7th edition, 2005.

John Cullis and Philip Jones, Public Finance and Public Choice, Oxford University Press, 1st edition, 1998.

Joseph E. Stiglitz, Economics of the Public Sector, W.W. Norton & Company, 3rd edition, 2000.

Kaushik Basu and A. Maertens (ed.), The Oxford Companion to Economics in India, Oxford University Press, 2007.

M. Govinda Rao, Changing Contours of Federal Fiscal Arrangements in India, AmareshBagchi (ed.), Readings in Public Finance, Oxford University Press, 2005.

M.M. Sury, Government Budgeting in India, 1990.
Mahesh Purohit, Value Added Tax: Experiences of India and Other Countries, 2007.
Mirrlees Review: Tax by Design, Oxford University Press, 2009.
R.A. Musgrave and P.B. Musgrave, Public Finance in Theory & Practice, McGraw Hill Publications, 5th edition, 1989.
T. Persson and G. Tabellini. *Political Economics*, MIT Press, 2000.
Papers from various journals and various volumes of *Handbook of Public Economics*

Recommended Textbooks

- ***Public Finance and Public Policy* – Jonathan Gruber**
- ***The Theory of Taxation and Public Economics* – Louis Kaplow**
- ***Lectures on Public Economics* – Atkinson &Stiglitz**

Major Elective Paper
PG1ECON1014

PG1ECON1014A
ECONOMICS OF SUSTAINABLE DEVELOPMENT
Credit: 4
Full Marks: 50
Lecture Hours: 60

Course Objective:

To create knowledge about dimensions of sustainable development and tools to monitor development processes.

Course Outcome

Ability to analyse environmental issues, especially the economics of natural resources and global & local sustainable development policies

1. **Dynamic model of fishery** **(10 Lectures)**

- Derivation of optimal stock in a dynamic framework,
- Derivation of catch locus, Mathematical derivation (through use of control theory) and geometric exposition
- Derivation of optimum steady state level of stock and yield; Dynamic open access model of fishery.

2. **Commons and Anticommons** **(10 Lectures)**

- Tragedy of commons - Unmanaged CPR, Managed CPR
- Private property regime; trust and credibility, conditions for credible promises;
- Problem of anticommons – basic concept

3. **Optimum extraction of exhaustible resources** **(12 Lectures)**

- General model of optimal depletion
- Optimal depletion under exploration and externality
- Exhaustible resource depletion under competition, monopoly and oligopoly

4. **Natural resource scarcity** **(8 Lectures)**

- Resource scarcity – Malthusian, Ricardian, and Cornucopian View; Physical and Economic measures
- Resource scarcity mitigation, recycling and substitution.

5. **Environmental Accounting** **(10 Lectures)**

- Basic Theory of Environmental Accounting
- Dynamic Optimization Model on National Income - Hawtrick‘s rule and sustainable income
- Environmentally adjusted national product and sustainable resource management-illustrations with various types of non-renewable and renewable resources
- Accounting of ecosystem services.

6. **Land and Water Management Issues in Sustainable Development** **(8 Lectures)**

- Concepts of sustainable development Issues and SDGs.

- Land for sustainable development, Land Management
- Water Resource, Water management for sustainable development

7. The Blue economy (7 Lectures)

- Concept and issues
- Difference between open access and common property resources,
- Wetland and its Ecological Services
- Economy ahead -scope and future prospects

8. Resource Conservation (5 lectures)

- Krutila-Fisher Model

References:

Hanley, N., J. Shogren and B. White: Environmental Economics in Theory and Practice, Macmillan.
Conrad, J.M.: Resource Economics, Cambridge University Press.
Phillip Neter: Natural Resource Economics.
Fisher, Anthony: Environmental and Resource Economics, Edward Elgar
Maler, K-G, Sara Aniyar and AsaJansson (2008) Accounting for ecosystem services as a way to understand the requirements of sustainable development, www.pnas.org/cgi/doi10.1073/pnas.0708856105
Perman, Roger, Yue Ma, James Mcgilvray and Michael Common: Natural Resource and environmental Economics, Pearson

Major Elective Paper
PG1ECON1014B
AGRICULTURAL ECONOMICS-I
Credit: 4
Full Marks: 50
Lecture Hours: 60

Course Objective:
Make students aware about the working of a agro based economy and how economics of agriculture shapes the rural economy

Course Outcome
Gaining a theoretical as well as an empirical understanding of the working of modern agriculture

Group A (Marks 25)

1. **Importance of Agricultural Economics (10 Lectures)**
   - Agricultural economics-its relevance and importance-relationship of agricultural economics with other branches of economics- development theories and agricultural economics
2. **Role of Agrarian Institutions (10 lectures)**
   - Social Institutions in agriculture-their role in fostering or constraining growth- stagnation theories- Akerlof's model - Ethics and its role.

3. **Application of Agricultural Economics: Village Surveys: (10 Lectures)**
   - Techniques and Methodologies – Background – Selection of Villages – Identifying economic activities and social norms – field of inquiry – survey methods – reporting.

Group B (Marks 25)

1. **Land Institutions and Land Markets: Efficiency and Equity Issues (12 Lectures)**
   - Efficiency of share cropping – Marshall and Cheung; Risk and Land contract
   - Share Cropping, MNCs and Contract Farming; Rules and Acts in India

2. **Agricultural Price formation (10 lectures)**
   - Agrarian price formation-Role of middlemen-Price expectations-Price fluctuations-Government policies of price stabilization.

3. **Agricultural Labour Market (13 lectures)**
   - Types of agrarian labour-permanent vs temporary- inequality, poverty and agrarian labour labour supply -seasonality of labour demand-A model of two-tiered agricultural labour market

References

Basu, Kausik: *Less Developed Economy*, OUP

Bhaduri, A(1973): 'A study in agricultural backwardness in semi-feudalism', *Economic Journal*, Vol. 83

Braverman, A and Stiglitz, J.E(1981): 'Sharecropping and interlinking of agrarian markets' , *American Economic Review*, Vol. 72

Ellis, Frank - Peasant Economics- *Farm households and agrarian development*, Cambridge University Press

Eswaran, Mukesh and Ashok Kotwal (1996) Why Poverty persists in India, Oxford University Press.

Rudra, A(1982): *Myths and Realities, Allied Publishers / Political Economy of Indian Agriculture*.

Major Elective Paper
PG1ECON1015

Major Elective Paper
PG1ECON1015A
APPLIED ECONOMETRICS
Credit: 4
Marks: 50
Lecture hours - 60

Course Objective:
Make students able to understand the analytical econometric models and use them in real life situation
Course Outcome
Ability to apply econometric modelling to real life data for decision making, policy appraisal, impact evaluation and report writing

Group-A
(25 marks)

1. Introduction to chaos theory (10 Lectures)

- Chaos and econometrics - randomness and chaos - a simple logistic model – Transient chaos - Period Doubling and Chaos - 2 Dimensional chaos - Strange attractors - Application to Economics - Habit persistent Models - Chaos in Ricardian growth Model - Chaos in a model of rational expectation with unemployment

2. Panel data Analysis (8 Lectures)

- Pooling of data - finding out panel effect, fixed effect model- testing and estimation-LSDV models- DID models, Random effect models-Hausmann test- Hybrid models-Fixed vs panel debate

3. Applied Econometrics: Demand analysis (6 Lectures)

- Double Logarithmic Demand Functions - The Double Log Form- Rotterdam Model - Absolute Price and Relative Price Rotterdam Formulations - Almost Ideal Demand System .- Full and Linear Approximate AIDS Models - Demand for Differentiated Products -Discrete Choice - Logit Models

4. Applied Econometrics: Production Function Estimation (6 Lectures)

- Econometrics of Production function - Modelling Firms' Behaviour - Problems of Identification and Solution
- Estimating Translog Production function - OLS and SURE
- Estimating CD Function - Estimation using MP Relations - Reduced Form Method - Factor Share Method - Instrumental Variable Technique
- Estimate of CES Production Function - By Kementa's Approximation - By Kementa's ILS Method
- VES Production Function: Sato and Hoffman, Lu and Fletcher, David Soskice.

Group-B
(25 marks)

1. Limited Dependent Variable Models (5 Lectures)

- Why Limited Dependent Models – Difference from CLRM – Types of Limited Dependent Variable Model

2. Count Data Models (5 Lectures)

- What are count data – estimation with Count Data – Poisson Regression – Over dispersion problem – Zero inflated models - Applications

3. Multinomial Logit Models (5 Lectures)

- Methods of estimation; Multinomial Logit (MNL); the Independence of Irrelevant Alternatives (IIA) assumption; Multinomial Probit models; Measuring Goodness of Fit; Testing assumptions; Application of Multinomial Logit Models

4. Ordered Categorical Models (5 Lectures)

- Why ordered models – Real life examples – Ordered Probit / Logit; Methods of estimation – Concept of Cut off and Cumulative Odds - Interpretation of Coefficients – Measuring Goodness of Fit; Applications

5. Nested Categorical Models (5 Lectures)

- Why nested models – Non-fulfilment of IIA assumption – Real life examples – Red Bus/Blue Bus theory – Nested Probit / Logit; Sequential Probit / Logit; Methods of estimation – Interpretation of Coefficients – Measuring Goodness of Fit; Applications

6. Selection Bias and Two-stage Models (5 Lectures)

- Sample Selection Bias in regression models – Real life examples – Consequences – Methods of estimation – Inverse Mills Ratio and Heckman Filter – 2 stage estimation – Hurdle Models

References

Goodwin, Barry.K. , Ford Ramsey, J Chovsta- Applied Econometrics with SAS-Modelling Demand, Supply and Risk

Bridge, J.L. – Applied Econometrics

Gujarati, D - Basic Econometrics, Tata McGraw Hill;

Gujarati, D– Econometrics with Example, Tata McGraw Hill;

Heckman, J. (1990). Varieties of Selection Bias, American Economic Review, May,

Heckman, J. (1976). The common structure of statistical models of truncation, sample selection and limited dependent variables and a simple estimation for such models. Annals of Economic and Social Measurement, 5 (4), 475-492.

Heckman, J. (1979). Sample selection bias as a specification error.Econometrica, 47 (1), 153-161.

Heckman,J. (1978). Dummy endogenous variables in a simultaneous equation system.Econometrica, 46 (6), 931-959.

Intrilligator - Econometrics with Economic Applications Rao& Miller – Applied Econometrics

Lee, B., & Marsh, L. C. (2000). Sample selection bias correction for missing response observations. Oxford Bulletin of Economics and Statistics, 62 (2), 305-323.

Maddala, G.S. (1983). Limited-Dependent and Qualitative Variables in Econometrics CUP McFadden, D. L. (1973).Conditional Logit Analysis of Qualitative Choice Behavior.Frontiers in Econometrics, Academic Press.

Review of Economics and Statistics (1968) for VES Production Function

Stock, James H. and Mark W. Watson (2007), Introduction to Econometrics, 2/E, Pearson

Wallis, K. – Topics in Applied Econometrics

Major Elective Paper
PG1ECON1015B
AGRICULTURAL ECONOMICS-II
Credit: 4
Full Marks: 50
Lecture Hours: 60

Course Objective:

Make students aware about the historical experiences of different countries in terms of farming households and societies and how that shapes people's lives

Course Outcome

Gaining a theoretical as well as an empirical understanding of the working of farm economics using international experiences

Group A (Marks 25)

1. **Agrarian Experience in International Perspective of Select Countries (10 lectures)**
   - Agrarian Experience of select Countries, Trade Liberalisation and Agriculture, GATT, WTO and recent international issues
2. **Features of Peasant Societies (10 lectures)**
   - Features of Peasant Societies; Farm household –economic definition of peasants-family, household and women-elements of peasant political economy
3. **Theories of peasants (10 lectures)**
   - The profit maximizing peasant-drudgery averse peasant-the invisible peasant-time allocation and the economic role of peasant women

Group B (Marks 25)

1. **The farm household Peasant (5 Lectures)**
   - Chayanov farm household model - impact of the change in production function on equilibrium output and labour use - demographic cycle - distinction between peasant mode of agriculture and the capitalise mode of agriculture - Extension of chayanov's model incorporating labour market.
2. **New Home Economics: (8 lectures)**
   - Home Economics - Essential Features of New Home Economics -The Barnum-Squire Farm Household Model - The Low Farm Household Model.
3. **Rural Credit Markets: (8 lectures)**
   - Nature of Rural Credit Market-Forms of Rural Credit -The Lender's Risk Hypothesis-Monopolistic Market - Market Fragmentation - Bhaduri's Model of Semi-feudalism.
4. **Interlinkage in Credit Markets: (9 lectures)**
   - Potential risk and the emergence of Interlinkage - Partial equilibrium in an interlinked market - Interlinkage and Intertemporal Earnings Approach - Moral Hazard and Interlinkage.

References:

Eswaran and Kotwal- A theory of two tiered labour market (AER 1971)
Eswaran and Kotwal-Access to credit and agraian class formation (AER 1971)
Boyce – Agrarian Impasse in Bengal (O.U.P.).
Indian Journal of Agricultural Economics, 1980
K. Basu – Less Developed Economy.

Core Paper
PG1ECON2011
ECONOMICS OF GROWTH
Credit: 4
Full Marks: 50
Lecture Hours: 60

Course Objective:
Make students aware about the progress in theoretical understanding of economic growth processes over the years and how growth theory can shape economic policies
Course Outcome:
Ability to understand & analyse the models, sources and patterns associated with growth performances of economies

Group A
(25 Marks)

1. Introduction (5 lectures)
- Stylized Facts of Economic Growth and Development: A Quick Look at the Facts and Fictions.
- The Objectives/Agenda
- Happiness and Growth

2. Classical Growth Theory (5 lectures)
- Smith and Ricardo
- Malthus and John Stuart Mill

3. HarrodDomar Model and its extension (4 lectures)
- Basic Idea and Extensions

4. Cambridge Models (4 Lectures)
- Kaldor, Pasinetti and Modern Demand based Growth theories

5. The Neoclassical Growth Model (8 lectures)
- Preferences, Technology and Demographics - Characterization of Equilibrium - Definition of Equilibrium - The Consumer Problem - Equilibrium Prices - Optimal Growth - Steady-State Equilibrium - Transitional Dynamics
- Technological Change and the Canonical Neoclassical Model - The Role of Policy
- Variants of the Neoclassical Model

6. Growth with Overlapping Generations (8 lectures)
- Problems of Infinity - Overlapping Generations and Over Accumulation - Demographics, Preferences and Technology - Consumption Decisions - Equilibrium
- More Specific Utility Functions - Pareto Optimality - Role of Social Security in Capital Accumulation - Fully Funded Social Security - Unfunded Social Security

Group B
(25 Marks)

1. Endogenous Growth (12 lectures)
- First-Generation Models of Endogenous Growth - AK Model Revisited - Demographics, Preferences and Technology – Equilibrium - Transitional Dynamics - The Role of Policy - The Extended AK Model - Growth with Externalities

- Preferences and Technology – Equilibrium - Pareto Optimal Allocations - Multiple Equilibria and the Process of Development - Multiple Equilibria From Aggregate Demand - Preferences and Technology – Equilibrium
- Human Capital Accumulation with Imperfect Capital Markets - A Simple Case With No Borrowing - The Galor and Zeira Model - Learning-by-Doing, Structural Change and Non-Balanced Growth - Demographics, Preferences and Technology – Equilibrium
- Schumpeter's Creative Destruction

2. Endogenous Technological Change (12 lectures)

- Expanding Variety Models - The Lab-Equipment Model of Growth with Product Varieties - Demographics, Preferences and Technology - Digression on Continuous Time Value Functions - Characterization of Equilibrium - Definition of Equilibrium - Steady State - Transitional Dynamics - Pareto Optimal Allocations
- Policy in the Endogenous Technology Model - Growth with Knowledge Spillovers - The Role of Competition Policy - Growth without Scale Effects - Models of Quality Competition - Baseline Model - Pareto Optimality
- Directed Technical Change - Basics and Definitions – Definitions - Basic Model – Implications - Equilibrium Technology Bias: Some More General Results - Endogenous Labor-Augmenting Technological Change - Demographics, Preferences and Technology - Consumer and Firm Decisions - Asymptotic and Balanced Growth Path

3. Solow-Romer Model (5 lectures)

- Background and description – General - Research sector - Manufacture of capital goods - Production of final output - Market structures, prices and wages – Consumption - The dynamic system - Condensation of the model equations - The steady-state - Phase-space of the Solow-Romer system - Dynamic response to economic shocks - Increase in the savings rate(s) - Increase in the productivity of researchers - Increase in the savings rate(s) - Rise in the profit share of income

4. Trade and Growth (4 lectures)

- Interdependence and Growth in the Open Economy - Human Capital and Technology (Nelson-Phelps) - Trade and Technology Diffusion - The Basic Krugman Model - Understanding the Effects of Trade - Trade, Specialization and the World Income Distribution – The Model – Equilibrium – Implications - Growth with Factor Price Equalization

5. Some Special and Advanced Issues (4 lectures)

- Level and Growth Effects of Human Capital - Growth and the Initial per Capita Human Capital Level - Defining convergence; The Convergence Hypotheses and Tests of the Convergence – Hypothesis - Human Capital in an Aggregate Product1on Function - Human Capital, Resource Constraints and Intergenerational Fairness - Growth, Fairness and Social Discounting

Suggested Readings

Topics 1 to 6

Philippe Aghion and Peter Howitt (1998), *Endogenous Growth Theory* Cambridge: MIT Press.

Barbier, E. B. (1999).Endogenous Growth and Natural Resource Scarcity. Environmental and Resource Economics (14), pp. 51.74. (1998), *Endogenous Growth Theory* Cambridge: MIT Press.

Blankenau, W. and N. Simpson (2004).Public education expenditures and growth. Journal of Development Economics 73, pp. 583-605.

Bravo-Ortega, C. and J. De Gregorio (2005).The Relative Richness of the Poor?Natural Resources, Human Capital, and Economic Growth.World Bank Policy Research Working Paper No. 3484.

Bretschger, L. and S. Smulders (2006). Sustainable Resource Use and Economic Dynamics, Environmental and Resource Economics 36 (1), pp. 1-13.
Barro, Robert J. and Xavier Sala-i- Martin (1995), *"Economic Growth"*, McGraw-Hill, Inc., Singapore
Lucas, J. 1988. Mechanics of Development.Journal of Monetary Economics. Vol. 22 (1), pp. 3-42.
Aghion, P. and Howitt, P. 1992. A Model of Growth Through Creative Destruction. Econometrica, Vol. 60, No. 2, pp. 323-351.

Suggested Readings for Topics 7-9

Philippe Aghion and Peter Howitt (1998), *Endogenous Growth Theory* Cambridge: MIT Press.
Dynamic Analysis of a 'Solow-Romer' Model of Endogenous Economic Growth Gordon Schmidt, *Centre of Policy Studies, Monash University*

Suggested Readings for Topic 10

Sebastian Edwards (1997), "Openness, Productivity, and Growth: What Do We Really Know?" NBER
Jeffrey Frankel and David Romer (1996), "Trade and Growth: An Empirical Investigation," NBER.
Philippe Aghion and Peter Howitt (1998), *Endogenous Growth Theory* (Cambridge: MIT Press)

Suggested Readings for Topic 11

Rebelo, S. (1991).Long-Run Policy Analysis and Long-Run Growth.*Journal of Political Economy,* 99 (3), 500-521.
Romer, P. (1986).Increasing Returns and Long-Rung Growth.*Journal of Political Economy,* 94 (5), 1002-10037, 16.
Romer, P. (1990).Endogenous Technological Change.*Journal of Political Economy* 98, (5), part 2, S71-106.
Segerstrom.P. (1998).Endogenous Growth without Scale Effects.*AmericanEconomicReview,* 88 (5), 1290-1310.
Barro, Robert, "Economic Growth in a Cross Section of Countries," Quarterly Journal of Economics, May 1991.
Baumol, William, and Edward Wolff, "productivity growth, Convergence, and Welfare: A Reply," American Economic Review, December 1988.
Benhabib, Jess, and BoyanJovanovic, "Growth Accounting and Externalities," American Economic Review, March 1991.
Barro, R. J. and X. Sala-i-Martin. 1996. Convergence. Journal of Political Economy, 100, 223-251.
Romer, P. M. 1986.Increasing returns and long run growth. Journal of Political Economy 94, 1002- 1037.

Core Paper

PG1ECON2012

RECENT ISSUES IN INDIAN ECONOMY

Credit: 4

Marks: 50

Lecture hours - 60

Course Objective:

To provide a snapshot of India's economic policies in the post-2000 period, its interplay with global economic and geopolitical events, and what needs to be done to build a sustainable and prosperous India in the 21st century.

Course Outcome

Ability to understand & analyse the structure, performances, challenges, and opportunities facing Indian economy in recent times. The course will be based on Readings of selected articles for a comprehensive and contextual understanding.

1. India's historical processes – a snapshot (4 Lectures)

- Strategy of India's Development Plans: An Overview
- Rationale of Economic Reforms in India
- Structural Adjustment

2. Growth and Sectoral Performance of the Economy: (8 Lectures)

- Structural change and structural breaks
- Manufacturing growth and issues related to productivity
- Transformation in Trade & Services, Service sector growth.
- Reforms, Growth, Slow Down and Resilience

3. Agricultural & Allied Sector (8 Lectures)

- Reforms and Transformation of Agricultural Sector
- Agriculture, Food & Nutrition Security, Measurement Issues
- PDS &Supply Chain Management
- Issues of MSP, Organised Markets and Farm Policies
- Crisis in Agriculture - Challenges& Future Prospects

4. Industry & Innovation (8 Lectures)

- India's Missing Middle in Manufacturing sector
- Regional Concentration of Manufacturing
- The New Industries – Electronics, Pharmaceuticals, Agri-business
- MSMEs in India – Strength, Weakness, Opportunities
- AI, Innovation and Industries

5. Trade and Payment Reforms in India (8 Lectures)

- Merchandise trade performance and determinants, Dimensions of service trade,
- Capital flows and their impact
- Balance of Payments and issues related to accumulation of Foreign Exchange Reserves; Remittances; Capital Account Convertibility.

6. Infrastructure (8 Lectures)

- Transport & Communication Infrastructure – Status, Bottlenecks, Policies
- Ports (Land-ports, Sea-ports & Air-ports) in India – Capacity and Technology
- Energy Infrastructure and Energy Security
- Irrigation, Sanitation and Water Supply

7. Human Resource (8 Lectures)

- Higher Education in India – Skill Gap, Privatisation, Cost of Education
- Towards Universal Health – Obstacles and Needs
- Labour Rigidity & Labour reforms
- Employment Quality in India
- Fourth Industrial Revolution & Labour Market
- Gig economy and its Implications

8. Inclusive Development & Welfare (8 Lectures)

- Sustainable and Inclusive Growth
- Economic Deprivations – Poverty, Inequality, Malnutrition
- Land, Forests and Rights
- Corruption & Economy
- Happiness and Well-being
- Social Policies and Cash Transfer

References

Core Readings:

A. *Two Decades of Economic Reforms: Towards Faster, Sustainable and More Inclusive Growth*; UMA KAPILA (ed), Academic Foundation, New Delhi, 2012
B. *Essays on Indian Economy*; R. RADHAKRISHNA, Academic Foundation, New Delhi, 2019
C. *India's Economy and Society: Lateral Explorations*, SUNIL MANI and CG IYER, Springer, 2021
D. *Breaking the Mould: Reimagining India's Economic Future*; RAGHURAM RAJAN and ROHIT LAMBA; Penguin, 2025
E. *Infrastructure Planning and Management in India: Opportunities and Challenges*, PRAVIN JADHAV and RN CHOUDHURY (eds), Springer, 2022

Specific Readings

Module 1:

Roy, Tirthankar (2013) *Economic Change in India: 1950–2010* in *The Economic History of India, 1857-1947*, Oxford Academic

Panagariya, Arvind (2020) *NewIndia: Reclaiming the Lost Glory*, OUP; Ch 2, 12, 13

Nayyar, D. (2022) *The Bumpy Road to Developed India by 2047? Look beyond the arithmetic of growth*. News Article, The Live Mint.

Module 2:

Rajan, Raghuram - *How do Countries grow Rich?* - in core reference D

Subramanian, Arvind and Josh Felman - *India's Stalled Rise: How the State Has Stifled Growth,* Foreign Affairs, January/February 2022 Published on December 14, 2021

Subbarao, Duvvuri - *Monetary Policy Dilemmas: Some RBI Perspectives* – in core reference A

Rajan, Raghuram - *The Transformation in Trade and Service led Development* - in core reference D

Gokarn, Subir - Growth, Resilience and Reform: Reflections on Post-Crisis Policy Challenges – in core reference A

Acharya, Sankar and Rakesh Mohan (eds.) (2010), India's Economy: Performance andChallenges, OUP, New Delhi

Raj Kapila ,Uma Kapila (eds) India's Economy in the 21st Century, Academic Foundation

Module 3:

Vyas, VS - *Challenge of Transforming Indian Agriculture* – in core reference A

Gulati, Ashok - *Reforming Agriculture* – in core reference A

Radhakrishna, R – core reference B -Ch 7-12

Himanshu - *The Crisis in Indian Agriculture: Genesis, Response and Future Prospects* - in core reference C

Kumar, Parmod and Yasmeen - *Supply Chain Management of Food Grains in India* - in core reference C

Module 4:

Rajan, Raghuram – *Why has India not built a global Manufacturing Presence?*- in core reference D

Ramaswamy, KV - *Regional Concentration of Industries in India: What Does the Recent Data Say and How to Understand the Implications?* A Perspective – in core reference C

Dhar, Biswajit & Joseph, Reji. (2019). *The Challenges, Opportunities and Performance of the Indian Pharmaceutical Industry Post-TRIPS* in K.-C. Liu, U. S. Racherla (eds.), Innovation, Economic Development, and Intellectual Property in India and China, Springer

Francis, Smitha and Murali Kallummal - *Indian Electronics Industry's FDI-Led GVC Engagement: Theoretical and Policy Insights from a Firm-Level Analysis* – in core reference C

Chakrabarty, KC - *Empowering MSMEs for Financial Inclusion and Growth: Issues and Strategies* – in core reference A

Mani, Sunil - *India's Performance in Science, Technology and Innovation: The Post 2000 Scenario* – in core reference C

Module 5:

Bimal Jalan, India's Economic Crisis - The Way ahead,Oxford University Press,1991

Rakshit, M (2008a), Macroeconomics of Post-Reforms India, OUP, New Delhi.

India's Development Reports, Various years

Reddy, Y V (2004), Lectures on Economic and Financial Sector Reforms in India, OUP, New Delhi.

B. Chatterjee (edited). Economic Liberalisation in India, Allied Publishers, 1998.

B. Chatterjee and A. K. Karmakar (eds.). Capital Account Convertibility in India, New Delhi: Deep & Deep Publications, 2011.

Module 6:

Pravin Jadhav and Rahul Nath Choudhury (eds) (2022) *Infrastructure Planning and Management in India: Opportunities and Challenges*, Springer

Morris, Sebastian - *Financing Green and Brownfield Private Infrastructure in India* – in core reference C

De, P. (2008), 'Infrastructure Development in India', in Kumar, N. (ed.), International Infrastructure Development in East Asia – Towards Balanced Regional Development and Integration, ERIA Research Project Report 2007-2, Chiba: IDE-JETRO, pp.105-130.

Nataraj, G. 2007. Infrastructure Challenges in South Asia: The Role of Public-Private Partnerships. ADBI Discussion paper No. 80. Tokyo.

Ohri, M (2009), Airport Privatization in India – A Study of Different Modes of Infrastructure Provision.

Raghuram G, Samatha Bastian and Satyam Sivam Sundaram, (2009), ―Mega Projects in India: Environmental and Land Acquisition issues in Road Sector‖, WP. No, 2009-03-07, March, Indian Institute of Management, Ahmedabad.

Sahoo, P and Ranjan K. Dash, (2009), ―Infrastructure Development and Economic Growth in India, *Journal of the Asia Pacific Economy*, Vol. 14, Issue. 4, Routledge

Majumder, Rajarshi, Subhadip Ghosh & Bidisha Chatterjee (2022). Energy Infrastructure in India: Challenges and Opportunities. Productivity. 63. 21-34. 10.32381/PROD.2022.63.01.3.

Module 7:

Rajan, Raghuram – Ch 7-8 in core reference D

Ravindran, T., K. Sundari and Neena Elezebeth Philip - *Towards Universal Health Coverage? Taking Stock of Two Decades of Health Reforms in India* – in core reference C

Choudhury, Pradeep Kumar and Amit Kumar - *Changing Landscape of Professional Higher Education in India: What Do We Know and What Do Recent Data Tell Us?* – in core reference C

Chakraborty, Achin (2015) Reforming Labour Markets in States: Revisiting the Futility Thesis, *Economic and Political Weekly*, Vol 50, Issue 20, May 16, 2015
Roychowdhury, Anamitra & Sarkar, Kingshuk. (2021). Labour Reforms in a Neo-liberal Setting: Lessons from India. *Global Labour Journal*. 12. 58-64. DOI: 10.15173/glj.v12i1.4457.
De, S., Mukherjee, D., & Ray, J. (2022). Skill in Indian Labour Market: Current Trends and Estimating Future Gaps. *Arthaniti*, 24(1)
World Economic Forum – The Future of Jobs Report, *latest year*
Bhattacharyya, Sujatra & Mitra, Arup.(2020). Fourth industrial revolution and India's "employment problem". International Journal of Social Economics. DOI: 10.1108/IJSE-09-2019-0540.
Awasthi, D., Yagnik, J. Digitisation, Automation and 'Jobs at Risk': A Comparative Analysis of BRIS Countries, and a Detailed Analysis of the Indian Scenario. Ind. J. Labour Econ.68, 417–450 (2025). https://doi.org/10.1007/s41027-024-00551-z
NITI (2022) India's Booming Gig and Platform Economy: Perspectives and Recommendations on the Future of Work, Policy Brief, 2022, NitiAayog, GoI

Module 8:

Debroy, Bibek - *India in 2025: Growth and Inclusion* – in core reference A
Hanumantha Rao, CH -*Inclusive Growth: Role of Sociopolitical Factors: Comparative Experience of India and China* – in core reference A
Radhakrishna, R – Ch 4-6 in core reference B
Rajan, Raghuram – *Addressing Inequality* – in core reference D
Swaminathan, Padmini - *Gender and Development: Back to Basics Continued Relevance of Marcal's Who Cooked Adam Smith's Dinner* – in core reference C
Singh, Manmohan - *Towards Rapid, Sustainable and Inclusive Growth: Challenge of the Future* - in core reference A
Rajan, Raghuram – *Governance* – in core reference D
Singh, Ram - *Land for Development: Market Versus Non-market Mechanisms* – in core reference C
Basu, Kaushik - *Why for a Class of Bribes the Act of Giving a Bribe should be Treated as Legal* – in core reference A
Rajan, Raghuram – *India's Engagement with the World* – in core reference D

Major Elective Paper
PG1ECON2013

PG1ECON2013A
ADVANCED FINANCIAL ECONOMICS
Credit: 4
Full Marks: 50
Lecture Hours: 60

Course Objective:
To create ability to understand the working of financial market and financial decisions

Course Outcome
Understanding how financial resources are transacted in the market and its impact on the economy

1. **International Financial Issues (15 Lectures)**
   - An Overview of International Liquidity; Models of Financial Crisis & Debt Crisis.

2. **Fixed Income Securities (20 Lectures)**
   - Meaning and Types of fixed income securities, Treasury bills, government bonds, corporate bonds, Features of Bond market- Types of bond returns, duration of bond, Immunization theorem, Convexity of bond.

3. **Mutual Funds and Performance Evaluation (10 Lectures)**
   - Evolution of mutual funds, Closed-End and Open-End Funds, Mutual Fund Objectives, Calculating Fund Returns, Risk-Adjusted Performance –Comparison of Performance Measures (Sharpe, Treynor, Jenson, Fama).

4. **Financial Derivatives –An Overview (5 Lectures)**
   - Meaning; Types; Uses; Historical Background of their Development; Features; Market Players; Trading Mechanism.

5. **Futures (10 Lectures)**
   - Terminology; Futures Pay-off; Margin Accounting System; Pricing –without Dividend and with Dividend ; Strategies –Static and Dynamic Hedging ; Speculation in Futures Market.
   - Indian Commodity Futures market – Pricing & Trading.

6. **Options (15 Lectures)**
   - Terminology; Option Pay-off; Pricing and Put-Call Parity; Option Strategies –Strangle, Straddle, Spreads, Butterfly. Option Pricing: replicating portfolio, Binomial tree, Black-Scholes formula, Greeks and Volatility.

7. **Swaps (5 Lectures)**
   - Interest Rate Swaps –Meaning & Valuation; Currency Swaps –Meaning & Valuation.

8. **Introduction to Behavioural Finance (5 Lectures)**
   - Prospect Theory - evaluating Risk and Time, Self-interest vs fairness, Nudge theory, Case studies and its applications

References

Bodie, Kane, Marcus and Mohanty: Investments, Tata McGraw Hill.

Dan Ariely, Predictably Irrational: The Hidden Forces That Shape Our Decisions.
Elton and Gruber: Modern Portfolio Theory and Investment Analysis, John Wiley & Sons.
Fischer and Jordan: Security Analysis and Portfolio Management, Prentice-Hall of India Pvt.Ltd.
Fullerand Farrel (Jr.): Modern Investments and Security Analysis, McGraw Hill Book Company.
Giancarlo Gandolfo: International Finance and Open-Economy Macroeconomics. Springer, 2002.
R.M. Kishore: Financial Management, Taxmann Allied Services.
Richard H Thaler, Misbehaving: The Making of Behavioural Economics.
Richard Thaler and Cass Sunstein, Nudge: Improving Decisions about Health, Wealth and Happiness.
Richard Thaler, The Winner's Curse.
Ross, Westerfield and Jordan: Fundamentals of Corporate Finance, Tata McGraw Hill.

Major Elective Paper

PG1ECON2013B

REGIONAL ECONOMICS

Credit: 4

Marks: 50

Lecture hours - 60

Course Objective:

To make students understand the role of space and region in economic decisions and how that supports or impedes development processes

Course Outcome

Ability to understand regional economic processes that leads to global and regional divergence and convergence; understand theories of location of economic activities; apply econometric modelling in spatial context

1. Basic Concepts of Regional Economics (12 Lectures)

- What is a Region? How are regions formed? Link between Region & Development
- What Causes Regional Growth? - The Role of Demand - The Role of Supply - Interregional Trade and Factor Movements - Interregional Convergence - External and Internal Factors in Regional Development
- The Role of Cities in Regional Development

2. Significance of Regional Economics (8 Lectures)

- Theories of Divergence and Convergence Core-Periphery models: Myrdal's Cumulative Casuation Hypothesis; New Economic Geography models: Paul Krugman's model of industrial location and development

3. Regional Distribution of Economic Activities – Location Theories (10 Lectures)

- Losch, Weber, Isard
- Central Place Theory
- Gravity Models

4. Regional Input-Output Analysis (10 Lectures)

- Introduction - Input-output analysis in a single region
- Input-output analysis in two or more regions: The inter-regional input-output (IRIO) model
- Input-output analysis in multiple regions: The multi-regional input-output (MRIO) system.

5. Measuring Regional Patterns (10 Lectures)

- Agglomeration Measures: Location quotient, coefficient of localization, localization curve
- Regional processes – Shift Share Analysis
- Spatial Association – Moran's I, Kelejian Robinson test;
- Spatial Clustering – Methods; Partitioning Methods; Hierarchical Methods;
- Spatially Lagged Models: Spatial Lag, VAR & ECM in Spatial models
- Empirical Examples and Applications

6. Regional Development in India (10 Lectures)

- Regional Disparities in Colonial India
- Regional Disparities in post-independent India – Policies during 1950-80
- Regional disparity in India after Structural Reforms

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Basile, R., M. Durbán, R. Mínguez, J. M. Montero, and J. Mur (2014), Modeling regional economic dynamics: Spatial dependence, spatial heterogeneity and nonlinearities, Journal of Economic Dynamics and Control, 48, 229 – 245

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Major Elective Paper
PG1ECON2013C
ECONOMICS OF SOCIAL CAPITAL
Credit: 4
Full Marks: 50
Lecture Hours: 60

Course Objective:

To create knowledge about the social processes of networking, community engagement and social capital and how that contributes to economic wellbeing

Course Outcome

Understand the emergence and importance of social capital and its implications in understanding society & economy.

1. Introduction (7 Lectures)

- Emergence of Social Capital: Bourdieu's theory of capital (economic, cultural and social capital) and Coleman's Rational Choice Approach to Social Capital (Kinds of social capital).

2. Civic Perspective on Social Capital (12 lectures)

- Civic Perspective on Social Capital: Robert D. Putnam's concept of social capital – Elements of social capital –Characteristics of social capital –Bridging vs. bonding social capital –Critique of Putnam's concept.

3. The network approach to social capital (12 lectures)

- The network approach to social capital: The concept of Ronald S. Burt –network structure and functions –network types –homogeneity and heterogeneity in networks –strong and weak ties – Social Network and learning & technology adoption –

4. The resource perspective (12 lectures)

- The resource perspective: Nan Lin's concept of social capital -Institutions, network and capital building in societal transformation.

5. Social Capital & Development Theory (12 lectures)

- Social Capital approach to development: role of social capital in economic and cultural development -Critical evaluation of social capital.

6. Social Capital & Development Empirics (15 lectures)

- Measurement of Social Capital: The World Bank Method - Importance of Social Capital in Micro-finance - Relationship between Social Capital and Subjective Well-Being – Social Entrepreneurship & Economic Development

Suggested References:

Anirudh Krishna. 2003. Active Social Capital, New Delhi: Oxford University Press.

Becker, G. S. 2006. "The age of human capital." In: Lauder, H., P. Brown, J. A. Dillabough, A. H. Halsey (eds), Education, Globalization and Social Change. Oxford University Press, pp. 292-294.

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Francis Fukuyama. 2002. Culture and Economic Development, from the Encyclopedia of the Social and Behavioral Sciences, Elsevier, 2002.
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William R. Easterly. 2001. The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics, Cambridge, MA: MIT Press.

Major Elective Paper
PG1ECON2013D
RURAL DEVELOPMENT
Credit: 4
Full Marks: 50
Lecture Hours: 60

Course Objective:

Create awareness about the theories of rural development and how those have been applied across sets of countries

Course Outcome

Ability to understand & analyse theories, models, policies related to rural development for developing countries and assess Indian situation in international context

1. Rural Development - Background & Concept (12 Lectures)

- Concepts and Connotations of Rural Development, Definition and Scope of Rural Development, Causes of Rural Backwardness; Need for Rural Development, Historical Evolution of the Concept of Rural Development in Indian Context.
- Contours & Success of selected Rural Development Programs in India - IRDP, SGSY, MGNREGA, NRHM, ICDS, PURA, CAPART, DIRECT BENEFIT TRANSFER, etc

2. Rural Development: Theories & Approaches (14 Lectures)

- Changing focus of Rural Development Policies over the decades. Rural development in the light of different development theories.
- Approaches to Rural Development in India: Gandhian Model of Rural Development, Broad Front Approaches to rural development: Sectoral, Participatory, Area based, Target Group based and Integrated.

3. Rural Socio-political Institutions & Processes (12 Lectures)

- Decentralized Planning, Panchayat Raj Institutions: Evolution, Structure & Functions, Impact of Decentralized Governance on Rural Development. participatory development; stakeholder participation
- Role of Co-operative Institutions: Concept and Principles, Types and Working of Rural Credit Cooperatives, Marketing Cooperatives
- NGO's and paradigm shifts – their implications on Education, Women Empowerment, Health, Disaster management, Girl Child and Weaker Sections

4. Community Based Interventions for Rural Development (12 Lectures)

- Micro Finance & Micro Enterprises - Empowerment of Poor and Marginalized; Self Help Group promotion: Concepts, Elements, Stages, Savings Operations of SHGs, Credit Operations of SHGs, Problems faced by Intervening Agencies. SHG – Bank Linkage and scheme
- SGSY as micro enterprise programme Micro finance programmes in India – an assessment pilot project of NABARD – Salient features

5. Rural Development Strategy (10 Lectures)

- Development of agro-based industries and Rural non-farm sector
- Diversification of rural economic activities: Livestock economies - livestock resources and their productivity; white revolution; fishery and poultry development; horticulture and floriculture.

6. Rural Natural Resources and Sustainable Development (10 Lectures)

- Water resources: Need for judicious use of Water, Ground Water Utilization, Integrated Watershed Management Programme, Ralegaon Shiddhi Model, Forest Committees, Need for Environmental awareness in rural area
- Impact of Climate Change on Crop Productivity; Climate Smart Agriculture, Impact on Rural Livelihood.

References:

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Das Kumar B - Rural Development through Decentralization

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Dinda, S. 2019. Climate Friendly Goods and Technologies in Asia: Opportunities for Trade. Springer.

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Hla Myint: The Economics of Developing Countries

Jain S.C. - Rural Development

James Copestske - NGO Sponsering of Group Lending in Rural India: Theory and a Case Study

Khanna BS - Rural Development in South Asia: Policies, Programmes and Orgnizations

Kripalani J.B. - Gandhian Thought

Mayfield, James B. () A Chronology of Rural Development Theory and Practice (1950s-2000s)

Misra & Sharma: Problems and Prospects of Rural Development

N.I.R.D. Rural Development in India Some Facets

Nanavati&Anjalia The Indian Rural Problems

Rao R.V. Rural Industrialization in India

Robert Chambers: Rural Development

Sharma & Malhotra: Integrated Rural Development

Singh Katar: Rural Development: Principles, Policies and Management.

V. K. Ramachandran, VikasRawal and Madhura Swaminathan *Socio-Economic Surveys of Three Villages in Andhra Pradesh: A Study of Agrarian Relations* Edited by New Delhi: Tulika Books. 2010. ISBN

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Vasant Desai Organization and Management of Small Scale Industries

Wignaraja, Ponna (1985) 'Towards a new Praxis of Rural Development', Annals of Public andCooperative Economics, Vol 56, Issue 1-2, pp121-43

Wilbert E. Moore Social Change

Yasant DesaiA Study of Rural Economy

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Major Elective Paper
PG2ECON2014

PG1ECON2014A
ADVANCED ECONOMETRICS
Credit: 4
Full Marks: 50
Lecture Hours: 60

Course Objective

To make students capable of understanding advanced econometric methods and able to apply them

Course Outcome

Ability to apply econometric methods to socioeconomic time series and panel data & quantify economic relationships for informed decision making

Group-A: Time Series Econometrics
(25 Marks)

1. Univariate time series analysis and forecasting (10 Lectures)

- Linear time series analysis – autocorrelation function and partial auto-correlation function – auto-regressive (AR) models, moving average (MA) models, Box-Jenkins (BJ) ARMA and ARIMA models – identification – estimation and forecasting with ARIMA models – economic applications.

2. Multivariate time series analysis and forecasting (10 Lectures)

- Vector autoregressive (VAR) models – advantages and problems – estimation and forecasting with VAR – Impulse Response Functions & Variance Decomposition – Johansen Co-integration test on VAR – Granger causality test – Vector-error-correction models (VECM) – Vector Moving Average Models – Vector ARMA Models – Applications

3. Modelling volatility and auto-correlation in time series (10 Lectures)

- Motivation and test for non-linearity – historical and implied volatility – auto-regressive conditional heteroscedasticity (ARCH) model – Generalised ARCH model – Extensions to the basic GARCH model – Asymmetric GARCH models – Estimation of the GARCH Models – Stationary ARMA-GARCH Models – Lagrange Multiplier Test – Multivariate GARCH Formulations – Applications

Suggested Readings

Walter Enders - Applied Time Series Econometrics.
Robert Shumway & David Stoffer - Time Series Analysis and its Applications with R Examples
Amisano, Gianni and Carlo Giannini (1997).Topics in Structural VAR Econometrics, 2nded, Springer. Segerstrom. P. (1998).
Daniel L. McFadden (eds.), Handbook of Econometrics, Volume 4, North-Holland.
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Greene, William H. (1997). Econometric Analysis, 3rd Edition, Prentice Hall.
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HashemPesaran - Time Series and Panel Data Econometrics
Hodrick, R. J. and E. C. Prescott (1997). "Postwar U.S. Business Cycles: An Empirical Investigation," Journal of Money, Credit, and Banking, 29, 1-16.
Lütkepohl, Helmut (1991). Introduction to Multiple Time Series Analysis, Springer-Verlag

Group-B: Panel Data Econometrics
(25 Marks)

1. Introduction to Panel Data (10 Lectures)

- Structure of Panel Data - Complicacy of panel data analysis – Short vs. long panels – Balanced vs. unbalanced panel – Clustering of residuals – Types of regressors – economic examples.

2. Panel Data Estimation Techniques (15 Lectures)

- Pooled OLS – LSDV Methods – Fixed and Random effects models – Time Fixed Effect, Space Fixed Effect, and Two-way Fixed Effect Models – Testing for model selection – Fixed vs Random – Fixed vs Pooled OLS – Estimation – Role of instrument variables to control endogeneity
- Organization of real world dataset for panel analysis, panel identifier, time identifier, regression analysis, interpretation of result, reporting results, using R software

3. Dynamic Panel Data Models (5 Lectures)

- SUR model – Dynamic Panel data models – Random coefficient model.

Suggested Readings:

Baltagi, B.H. (2008), Econometric Analysis of Panel Data, 4th Edition, Wiley
Robert Shumway & David Stoffer - Time Series Analysis and its Applications with R Examples, 4th ed
Dougherty, Christopher (2007), Introduction to Econometrics, 3rd Ed., Oxford University Press.
Das, Panchanan (2019) Econometrics in Theory and Practice: Analysis of Cross Section, Time Series and Panel Data with Stata
Croissant, Y.and G. Millo (eds) Panel Data Econometrics with R. Wiley
Longhi, Simonetta and Alita Nandi (2014) A Practical Guide to Using Panel Data, Sage

Major Elective Paper
PG1ECON2014B
ECONOMICS OF CLIMATE CHANGE
Credit: 4
Full Marks: 50
Lecture Hours: 60

Course Objective

Make students able to understand the phenomenon of Climate Change and its interactions with Nature, Man and Society

Course Outcome

Clear understanding of economics of climate change, emphasizing on energy sector and policy solutions for environmental resilience

1. **Climate Change** **(8 lectures)**
   - What is Climate Change – Weather & Climate – Markers of Climate Change – Temperature & Precipitation – Extreme Events
   - Triggers of Climate Change – Natural Factors & Anthropogenic Factors – Greenhouse effect - Land Use and Land Cover changes – Agriculture – Industry – Transport
   - IPCC Report, Stern review

2. **Climate Change – Global Issues** **(10 lectures)**
   - Trade, Development and Environment – The Capital Flight Hypothesis,
   - The Pollution Haven Hypothesis – Ecological Dumping
   - International/ Interregional Cooperation – The Issue of Trans-boundary pollution.
   - Technology – climate smart technology -technology transfer debate

3. **Climate Change & Energy** **(14 lectures)**
   - Energy Types by Sources & Use – Energy GDP Linkage – Impact of Energy Price Changes – Energy Intensity & Energy Efficiency – Decoupling Theory
   - Energy use and Carbon Emission – Energy Composition & Energy balance Tables – Reference Energy System (RES) – Energy Demand Estimation Methods – Rebound Effect

4. **Climate Change Policies** **(10 Lectures)**
   - Economics of global climate change policies
   - Climate Vulnerability & Resilience
   - Mitigation & Adaptation

5. **Climate Change & India** **(10 Lectures)**
   - Environmental Policies in India
   - Economics of Energy Demand in India
   - Energy Reform,
   - Energy Infrastructure
   - Emerging energy market -trading platforms, IEX, PBIX, etc.

6. **Institution and Climate Change Policy** **(8 Lectures)**
   - International Co-operation (Local & Global)
   - Climate Funding,
   - Technology Transfer- debate
   - Selected COP Agreements

References

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Baumol& Oates (1988): Theory of Environmental Policy (2/e), Chs 3,4,11 12.

Bazaraa, M S and J. J. Jarvis: Linear Programming and Network Flows, John Wiley and Sons, N. Y., 1990.

Bhattacharyya, R.N. (2001)(ed.) Environmental Economics: Indian Perspective, OUP.

Chakraborty (2001): Global Environmental Issues and Initiatives in Bhattacharyya (ed.) op.cit.

Chattopadhyay (2006): Dirtier Trade for India? The Story of Globalization in Arthaniti

Chichilinsky (1994): North-South Trade and the Global Environment, AER.

Dinda, S. 2014. Climate Change and Trade Opportunity in Climate Smart Goods in Asia: Application of Gravity Model, International Trade Journal, Vol. 28, no.3, 264-280.

Dinda, S. 2019. Climate Friendly Goods and Technologies in Asia: Opportunities for Trade. Springer.

Forest Reinhardt and Patia McGrath. 2002. "Global Climate Change After Marrakech (A)", Harvard Business School Case 9-702-075.

Gerking& Stanley (1986): An Economic Analysis of Air Pollution and Health: The Case of St. Louis. REStat.

Harrington & Portney(1987): Valuing the Benefits of Health and Safety Regulations, J. of Urban Economics.

IEA: World Energy Outlook: International Energy Organization, Paris, 2002.

Maler, K.G. (2000): International Environmental Problems in Kolstad (ed): Environmental Economics, OUP

Markandya & Murty (2001): Measuring Non-user Benefit from Cleaning Ganges in Cleaning up the Ganges: a Cost-benefit Analysis of the Ganga Action Plan, OUP.

McKibbin, Warick and Peter Wilcoxen. 2002. "The Role of Economics in Climate Change Policy," Journal of Economic Perspectives, Winter. 16(2): 107-129.

Metz, Bert (2010) Controlling Climate Change, CUP

Miller, R. and P. D. Blair: Input-Output Analysis: Foundations and Extensions, Prentice-Hall, N.J, 1985.

Munasinghe, M. and P. Meier: Energy Policy Analysis and Modelling, CUP, 1993.

Murty, et al (2005): Measuring benefits from reduced air pollution in the cities of Delhi and Kolkata in India using hedonic property prices model in Bhattacharyya &Mitra (ed.) Studies in Macroeconomics and Welfare, Academic Press.

Newman, P. and J. Kenworthy. 1988. "The transport energy trade-off: Fuel efficient traffic versus fuel efficient cities," Transportation Research Part A: General, 22(3): 163-174.

Parikh, et. al (2005): Economic Valuation of Air Quality Degradation in Chembur, Mumbai in Bhattacharyya &Mitra (ed.) Studies in Macroeconomics and Welfare, Academic Press.

Parry (1997): Reducing Carbon Emissions: Interactions with the Tax System, Resources Parry, Ian W H and Kenneth A. Small. 2005. "Does Britain or the United States Have the

Right Gasoline Tax?" American Economic Review, 95(4): 1276-1289.

Pindyck, R.S. and D. L. Rubinfeld: Econometric Models and Economic Forecasts, 4th

Edition, McGraw-Hill, New York, 1998.

Sanyal (2001): International Trade and the Environment in Bhattacharyya (ed.) op. cit.

Scott Barrett (1999): Montreal Versus Kyoto.

Stern, Nicolas (2007) The Economics of Climate Change: The Stern Review, CUP

Taylor, JB (2001): Principles of Macroeconomics, 3rd Ed, Houghton Mifflin, Boston, 2001. The Hindu Survey on Environment – Recent Issue

Tietenberg, Thomas (2006). Environmental and Natural Resource Economics, seventh edition, (Boston, MA: Addison Wesley, 2006). Chapter 18

Weyant, John P. (ed.), Energy and Environmental Policy Modeling, Kluwer Academic Publishers, Boston, 1999.

Journals: Energy Economics; Energy Journal, India Development Report – Recent Issues; IPCC Reports;

Reports: IPCC Reports, Stern Report

Major Elective Paper
PG1ECON2014C
DATA ANALYTICS
Credit: 4
Full Marks: 50
Lecture Hours (including Lab) : 60

Course Objective

This course's main objective is to let students learn how to collect raw social science data, explore it, and present the results in a useful way. This is a lab-based applied paper.

Course Outcome

Ability to use real life data for generating analytical reports with the statistical language R and other interfaces. Candidates will be allowed to use computing devices during examination

1. Introduction (10 lectures)

- Objectives and scope of data analytics;
- Data wrangling: Capturing and Cleaning data – Data science in a big data world – Benefits and uses of data science and big data – Facts of data – Data science processes
- Introduction to Data, R, and R-Studio;
- Working with datasets – importing, exporting, merging, subsetting
- Reliability and validity of data
- Overview of Statistical Inference;

2. Basic Data Analysis (5 lectures)

- Descriptive Statistics; Data Visualisation using bars and plots;
- Measures of central tendency and dispersion
- Simple Two variable and Multiple Linear Regression;
- Dealing with Missing data

3. Regression with Qualitative & Limited Dependent Variables (10 lectures)

- Count Data Models
- Qualitative independent variables – Coding and using;
- Qualitative dependent variables – models and methods – representing the results
- Applications - Building Credit Risk Models, Predicting Loan Defaults, Poverty Analysis

4. Time Series Techniques (10 Lectures)

- Time series data handling
- Seasonality and trends analysis
- Forecasting techniques – ARIMA, LSTM
- Measuring Volatility
- Applications – Stock price Prediction, GDP forecasting

5. Special Techniques (10 Lectures)

- Exploratory Factor Analysis
- Data Reduction – Principal Component Analysis
- Cluster Analysis
- Using Mapping tools

6. Introduction to Portfolio Analytics (5 lectures)

- Modern portfolio theory and efficient frontier analysis
- Risk management techniques in portfolio construction
- Portfolio optimization using mathematical models and algorithms.

7. Big Data & Machine Learning (10 Lectures)

- Scalable machine learning
- Big data related techniques - Mining stream data; Social networks

References

Using R for Data Analysis in Social Sciences: A Research Project-oriented Approach; Quan Li Oxford University Press, 2018

R for Data Science: Import, Tidy, Transform, Visualize, and Model Data; Hadley Wickham, Garrett Grolemund; "O'Reilly Media, Inc.", 2016;

R Cookbook: Proven Recipes for Data Analysis, Statistics, and Graphics; JD Long, Paul Teetor; 2nd Edition; "O'Reilly Media, Inc.", 2019;

R & Social Science: Getting Started with Applied Use of R in the Social Sciences, Michael Clark, University of Notre Dame, e-book

Using R for Data Analysis and Graphics: Introduction, Code and Commentary, J H Maindonald, e-book

Blogs, Websites, Handouts, Practicals

Core Paper
PG1ECON2015
PROJECT PAPER: SOCIOECONOMIC SURVEY, REPORT & PRESENTATION
Credit: 4
Full Marks: 50
Lecture/Practical Hours: 60

Course Objective

This paper is basically a Project paper, which aims to enhance the academic understanding of the students and provide them a ground-level experience of socioeconomic conditions in the hinterland of the university.

Course Outcome

Equip students with computational capabilities and ability to take up independent & guided field data collection and analysis.

The paper will consist of training on Computer Applications in the laboratory, a Socio-economic Survey, writing of a Survey Report and Viva-voce. The distribution shall be as follows:

Practical on Computer Applications (Internal Assessment)	**–**	**10**
Socio-economic Survey & Report	**–**	**15**
Presentation	**–**	**15**
Viva-Voce	**–**	**10**

The paper will be evaluated internally.

The part on Computer Applications shall consist of the following:

1. **Overview of File Management**
2. **Office Applications – Word, Excel, Power Point, Libre Writer, LibreCalc, Libre Impress.**
3. **Computer Application Packages**
   - (A) Primary and Secondary data handling with FOXPRO, MS-ACCESS, R
   - (B) Econometric Software - SPSS, EVIEWS, STATA, R (Any Two)
   - (C) NSSO Data Handling using Software
4. **Economic Applications**
   - (A) Linear Estimations
   - (B) Maximum Likelihood Estimation
   - (C) Qualitative Variables
   - (D) Time series analysis – AR, MA, ARMA. and ARIMA.
   - (E) Principal Component Analysis
   - (F) Forecasting and Simulations
   - (G) Pictorial Presentations
5. **Report Writing and Presentations**

Core Paper
PG1ECON2041
COMMUNITY ENGAGEMENT
Credit: 2
Full Marks: 50
Lecture/Practical Hours: 60

Course Objective

To familiarize students about the socio-economic realties at the local level and make them spend some time for social causes. Create meaningful changes in the society through the students

Course Outcome

Solving local problem through community participation and leadership by students

The main objectives are to develop an appreciation of culture, lifestyle and wisdoms among students, to learn about the states of various government programmes, to understand causes for local problems, and explore solutions for the same and to apply class room knowledge to field realities.

Under this paper the students will either work alone or form groups among them and will be monitored, guided, and accompanied by faculty member(s) if required. Students have to participate in the Community Engagement programmes/ activities of the department for the year concerned and follow it up with a written Report & Presentation and Viva-Voce.

Activities planned would include but not limited to:

1. Meeting with local administration to decide on time and place for outreach activities
2. Deciding about the social programs and schemes that needs to be highlighted during the relevant year in the selected region/place (in consultation with local administration)*
3. Deciding about the specific government policy on which impact assessment study is to be made (in consultation with local administration)
4. Create publicity material for governmental schemes
5. Spend at least 15 hours for field work in the selected region/place to spread awareness about selected programme
6. This site visit shall have three components – (a)Baseline Survey regarding initial awareness of selected scheme among the selected households; (b) End of programme Survey regarding post-programme awareness of selected scheme among the selected households; and, (c) Socio-economic survey among the households regarding impact assessment of specific government policies as decided in consultation with local administration
7. Writing a Report about the Outreach Programme which shall be curated and collated by the departmental faculty and submitted to the local administration
8. Presentation on the Experience and Outcome of the Outreach Programme

[* - Some of the programmes/schemes that can be selected (but not limited to) are – Sanitation Campaign/Swachh Bharat campaign, Immunisation & Safe Motherhood Campaign, Kanyashree/Beti Padhao Beti Bachao, Developing Financial Literacy, Entrepreneurship & MSME, Agricultural Extension Activities, Food & Nutrition programme, etc. Different programmes will be selected in different years according to departmental resource position and in tune with socio-economic relevance]

Evaluation pattern would be as follows:

- Internal Assessment (Presentation): 10 marks
- Report writing: 20 marks
- Viva-voce: 20 marks