



महात्मा गाँधी केन्द्रीय विश्वविद्यालय

MAHATMA GANDHI CENTRAL UNIVERSITY

(Established by an Act of Parliament)

Gandhi Bhawan, Bankat, Motihari, District: East Champaran, Bihar - 845401

www.mgcub.ac.in

DEPARTMENT OF ECONOMICS SCHOOL OF SOCIAL SCIENCES

Ph.D PROGRAMME PROGRAMME STRUCTURE

Course Work: Ph.D. (Course Work)			
S.No.	COURSE	COURSE CODE	Credits
1.	Research Methodology	ECON6001	4
2.	Quantitative Techniques for Economics	ECON6002	4
3.	Economic Analysis	ECON6003	4
4.	Research and Publication Ethics	ECON6004	2
Total Credits			14
Rest of the Programme			
Rules of the Thesis and Credit			
Rules of the Viva-Voce & Credit			
To be described as per the UGC rule and University Ordinance			



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DEPARTMENT OF ECONOMICS

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PH.D PROGRAMME

PH.D ECONOMICS

Detailed Course Structure

ECON6001: Research Methodology **(4 Credits)**

Course Code: ECON6001

Course Title: Research Methodology

Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per day)

Learning Outcomes:

The objective of this course is to develop a research orientation among the scholars and to acquaint them with fundamentals of research methods. Specifically, the course aims at introducing them to the basic concepts used in research and to economic research methods and their approach. The students will be taught software packages for performing econometric applications. Computer exercises will be given to students.

Attendance Requirements:

Students are expected to attend all lectures in order to be able to fully benefit from the course. A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. End Term Examination: 70%
2. Continuous Internal Assessment (CIA): 30%
 - a. Attendance : 5%
 - b. Comprehensive Continuous Assessment (CCA): 25%

COURSE CONTENT:

Unit I: Definition and Characteristics of Research **(10 hours)**

Research – Definition; Concept of Construct, Objective of Research. Types of Research, Steps of Research Process, Criteria of Good Research, Defining the research Problems, Research Design.

Unit II: Descriptive Statistics and Theoretical Distribution (10 hours)

Measurement and Scaling Techniques, Methods of Data Collection, Processing and Analysis of Data, Measure of Central Tendency, Measures of Dispersion, Skewness, Moments and Kurtosis, Correlation and Regression.

Random variable, Probability distributions, Discrete theoretical distribution: Binomial Distribution and Poisson distribution. Continuous theoretical Distribution: Normal Distribution and Standard Normal Variate (Z distribution). Other Theoretical Distribution: Students "t" Distribution, Chi-Square (χ^2) Distribution and F-Distribution.

Unit III: Sampling Theory and Hypothesis Testing (10 hours)

Population and sample, Parameter and statistic, Census method and sampling method of Data collection, Methods of Sampling, Central limit theorem, Sampling Design, Sample Size and its Determinants.

Testing of Hypothesis, Basic concepts, Computation of Test statistic and significance Test, Concept of degrees of freedom, Small sample test: t Test- χ^2 test, F test, Large sample test: Z test. Non-parametric tests, Analysis of Variance. Multivariate Analysis Techniques.

Unit IV: Outcomes of Research (10 hours)

Research paper writing – Relevance, interest, available data, choice of data, Analysis of data, Generalization and interpretation of analysis, Preparation of the Report on conclusions reached, Suggestions and recommendations, identifying future scope. Report Writing – Different stages in writing Report – Layout of the Research Report – Types – Precautions in writing Research Reports – Foot notes – Bibliography.

References:

1. Dawson, Catherine, 2002, Practical Research Methods, New Delhi, UBS Publishers' Distributors.
2. Kothari, C.R.,1985, Research Methodology-Methods and Techniques, New Delhi, Wiley Eastern Limited.
3. Kumar, Ranjit, 2005, Research Methodology-A Step-by-Step Guide for Beginners, (2nd.ed), Singapore, Pearson Education.
4. Shrivastava, Shenoy& Sharma, Quantitative Techniques for Managerial Decisions, Wiley
5. Goode W J &Hatt P K, Methods in social research, McGraw Hill 6
6. Basic Computer Science and Communication Engineering – R. Rajaram (SCITECH)
7. M.Cohen and E.Nagal – An Introduction to logic and Scientific method, NewYork 1962
8. Pauling V.Young – Scientific Social Survey's and Research, Prentice Hall –(Dorsey Press), New York.
9. Gupta, S. C. (2015), *Fundamentals of Statistics*, Himalaya Publishing House.
10. Gupta. S.C. and Kapoor V.K. (2000), *Fundamentals of Applied Statistics*, S.Chand, New Delhi.

ECON6002: Quantitative Techniques for Economics**(4 Credits)****Course Code: ECON6002****Course Title: Quantitative Techniques for Economics****Credits Equivalent: 4 Credits** (One credit is equivalent to 1 hour of lecture per day)**Learning Outcomes:**

The objective of this paper is to introduce basic econometrics, advanced econometrics and applied econometrics techniques that the course will equip the students with tools of econometrics for empirical work in economics. Economic theory will be supported and complemented by empirical exercises. Students shall learn about use of simultaneous equations, analysis of cross section, time series and panel data, the role of time or lag in economic relationship, impact evaluation, etc.

Attendance Requirements:

Students are expected to attend all lectures in order to be able to fully benefit from the course. A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. End Term Examination: 70%
2. Continuous Internal Assessment (CIA): 30%
 - a. Attendance : 5%
 - b. Comprehensive Continuous Assessment (CCA): 25%

COURSE CONTENT:**Unit I: Classical Linear Regression Models, Violation of CLRM Assumptions and Multivariate Linear Regression Model (10 hours)**

Ordinary least squares (OLS) estimation, the Classical assumptions, the Gauss-Markov theorem and properties of the OLS estimators, Functional Forms of Regression Model, Interpreting regression results, Violations of Classical Assumptions: Consequences, Detection and Remedies Multicollinearity; heteroscedasticity; Autocorrelation. Multiple Regression Equation, CLRM in Matrix Formulation.

Unit II: Dummy Variable Regression Models and Simultaneous-Equation Models (10 hours)

Concept of dummy variable, Dummy independent variable, Dummy dependent variable: LPM, Logit, Probit, Multinomial Logit, Multinomial Probit and Tobit models. Multinomial Response Models – Ordered and Sequential Response Models, Nested logit.

Rational behind the use of SEM - simultaneous bias and inconsistency of the OLS estimator, Structural, reduced form and final form model, Problem of Identification: Rank and Orders conditions, Methods of estimation: ILS, 2SLS, Instrumental Variable, LIML, Mixed estimation Method, 3 SLS and FIML methods.

Unit III: Time Series and Panel Data Analysis

(10 hours)

Stochastic Time Series Models, Stationarity and Testing for Unit Root, Co-integration, ARIMA Models, Stationarity, The Autocorrelation Function, The Partial Autocorrelation Function, Box–Jenkins Model Selection, Properties of Forecasts, ARCH and GARCH models. Vector Auto-Regression (VAR) Models, Cointegration and Error-correction Models, Impulse Response Function, Variance Decomposition.

The Fixed Effects Model, The Random Effects Model, Fixed vs Random, Panel Unit Root and Co-integration. Dynamic panel data model: Endogeneity, Anderson-Hsiao, Arrelano-Bond model.

Unit IV: Other Topics

(10 hours)

Seemingly Unrelated Regression (SURE), The Method of Principal Component Analysis, Nonlinear Regression Functions, Estimation of Nonlinear Regression. Missing Data and Imputation, Sample-selection Bias-Heckman correction: benefits, problems and alternatives; Median and Quantile Regression; Decomposition technique for linear regression models; Impact Evaluation, Causal Inference and Counterfactuals, Randomisation method, Regression Discontinuity Design, Propensity score matching (PSM) method, Difference-in-Differences (DD) Design, Instrumental Variable (IV) Method, Review of Empirical Studies.

Note: The students will be taught software packages for performing econometric applications. Computer exercises will be given to students.

References:

1. Baltagi, B.H. (2008), *Econometric Analysis of Panel Data*, 4th Edition, Wiley.
2. Cameron A. C. and P. K. Trivedi (2005), *Microeconometrics: Methods and Applications*, Cambridge University press, Cambridge.
3. Gujarati, D (1995), *Basic Econometrics*, 4th Edition, New York: McGraw Hill
4. Hamilton, JD (1994), *Time Series Analysis*, Princeton University Press, New Jersey.
5. Hsiao, C. (2003), *Analysis of Panel Data*, Cambridge University Press, Cambridge.
6. Johnston, J (1991), *Econometric Methods*, 3rd edition, New York: McGraw Hill.
7. Koutsoyiannis, A. (2001), *Theory of Econometrics*, 2nd edition, Palgrave Macmillan.
8. Lutkepohl, Helmut (2007), *New Introduction to Multiple Time Series Analysis*, Springer, New York.
9. Pindyck, Robert S. and Daniel L. Rubinfeld (1995), *Econometric Models and Economic Forecasts*, 4th Edition, Irwin McGraw-Hill, New York.
10. Stata Manual: xtivreg and xtabond.
11. Walter Ender (2004), *Applied Econometric Time Series*, 2nd edition, Wiley.
12. Wooldridge, J. (2009), *Introductory Econometrics*, 4th Edition, South-Western College Pub.

ECON6003: Economic Analysis

(4 Credits)

Course Code: ECON6003

Course Title: Economic Analysis

Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:

The objective of the course is to familiarize the students about the recent advances in economic theory. The course will also help the students to relate their research to economic theory and empirical data.

Attendance Requirements:

Students are expected to attend all lectures in order to be able to fully benefit from the course. A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. End Term Examination: 70%
2. Continuous Internal Assessment (CIA): 30%
 - a. Attendance : 5%
 - b. Comprehensive Continuous Assessment (CCA): 25%

COURSE CONTENT:

UNIT I : THEORY OF CONSUMER BEHAVIOUR

(6 hours)

Utility Analysis: Utility -Law of Diminishing Marginal Utility -Law of Equi-Marginal Utility - Consumer's Surplus; **Indifference Curve Analysis :**Indifference curve – Meaning and Properties -Marginal Rate of Substitution and Price line -Consumer's Equilibrium - Income effect. Price effect and Substitution effect (Hicks Allen Eugene Slutsky method); **Revealed Preference approach:** Strong and weak axioms of revealed preference.

UNIT II : THEORY OF PRODUCTION AND COST

(8 hours)

Production function - Law of Variable Proportions and Returns to Scale; **Isoquants:** Properties, Producers equilibrium, Elasticity of substitution - production function. Linear-Homogenous production function, Cobb – Douglas Production function; **Cost concepts-**Accountants" and Economists" Approach, Private and social costs, opportunity cost, fixed, variable and total costs, average and marginal costs : short run and long run cost curve; **Revenue concepts:** Average, Marginal and Total Revenue, revenue curves under different market conditions

UNIT III : PRICE AND OUTPUT DETERMINATION

(10 hours)

Perfect competition: Features, Price determination in short and long run, Equilibrium of Firm and Industry; **Monopoly:** Price and output determination, Price discrimination; **Monopolistic competition** – features, equilibrium of the firm and Group, Excess capacity, Defects in monopolistic competition; **Oligopoly** - Price and output determination – **Non Collusive:** Kinky demand curve and price rigidity, **Collusive:** Price leadership, Cartels and Game Theory.

UNIT : IV THEORIES OF DISTRIBUTION**(6 hours)**

Marginal Productivity Theory of Distribution; **Rent** -Ricardian Theory of Rent -Modern Theory of Rent Quasi Rent; **Wages** -Marginal Productivity, Theory of Wages -Wage Differentials; **Interest**: classical, Lovable Funds and Liquidity Preference theories; **Profit**:: Risk and Uncertainty and Innovation theory of Profit

UNIT : V THE CLASSICAL AND KEYNESIAN MACRO ECONOMICS (10 hours)

Classical Income and Employment Theory: The Classical Economics. Quantity Theory of Money, Fisher and Cambridge equations - Saving, Investment and the Rate of interest in the pre-Keynesian framework; **Keynesian Income and Employment Theory**: Keynesian Economics of Consumption, Savings and Investment - Theory of Multiplier.

References

1. Baumol, W.J. (1982), Economic Theory and Operations Analysis, Prentice Hall of India, New Delhi.
2. Hirshleifer, J and A. Glazer (1997), Price Theory and Applications, Prentice Hall of India, New Delhi.
3. Sen, A. (1999), Microeconomics : Theory and Applications, Oxford University Press, New Delhi.
4. Stigler G. (1996), Theory of Price, 4th Edition, Prentice Hall of India, New Delhi.
5. Sen. A. (1999), Microeconomics : Theory and Application, Oxford University Press, New Delhi.
6. Koutsoyiannis, A. (1979), Modern Microeconomics, 2nd Edition, MacMillian Press, London.
7. Ahuja H. L. (2003), Advanced Economic Theory : Microeconomics Analysis, 13th Edition, S. Chand and Co. Ltd., New Delhi.
8. Chaturvedi, Gupta and Pall (2002), Business Economics : Text and Cases, Galgotia Pub. Com., New Delhi.
9. Henderson, A. M. and R. E. Quandt (1980), Microeconomics Theory, A Mathematical Approach, McGraw Hill, New Delhi.
10. Dewett K. K., Modern Economic Theory, S. Chand & Company Ltd., Revised Edition, 2005.
11. Akeley G. (1978): Macro Economics: Theory and Policy, McMillan, Newyork
12. Edward Shapiro (2003), Macroeconomic Analysis, 5th Edition, Galgotia Publications

Course Code: ECON6004

Course Title: Research and Publication Ethics

Credits Equivalent: 2 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:

- To provide students with the fundamental knowledge of basics of philosophy of science and ethics, research integrity, publication ethics.
- To demonstrate hands-on sessions are designed to identify research misconduct and predatory publications.
- To explore indexing and citation databases, open access publications, research metrics (citations, h-index, Impact Factor etc)
- To guide and mentor students in presenting plagiarism tools for a valid and ethical research report.

Attendance Requirements:

Students are expected to attend all lectures in order to be able to fully benefit from the course. A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. End Term Examination: 70%
2. Continuous Internal Assessment (CIA): 30%
 - a. Attendance : 5%
 - b. Comprehensive Continuous Assessment (CCA): 25%

COURSE CONTENT:

Theory

Unit I: Philosophy and Ethics

Introduction to philosophy: definition, nature and scope, concept, branches Ethics: definition, moral philosophy, nature of moral judgments and reactions.

Unit II: Scientific Conduct

Ethics with respect to science and research, Intellectual honest and research integrity Scientific misconducts: falsification, fabrication, and plagiarism. Redundant publications: duplicate and overlapping publications, salami slicing Selective reporting and misrepresentation of data.

Unit III: Publication Ethics

Publication ethics: definition, introduction and importance Best practices/standards setting initiatives and guidelines: COPE, WAME, etc. Conflicts of interest Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types Violation of publication ethics, authorship and contributor ship Identification of publication misconduct, complaints and appeals Predatory publishers and journals

Practice

Unit IV: Open Access Publishing

Open access publications and initiatives SHERPA/RoMEO online resource to check publisher copyright and self-archiving policies. Software tool to identify predatory publications developed by SPPU Journal finder/ journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.

Unit V: Publication Misconduct

A. Group Discussions

Subject specific ethical issues, FFP, authorship Conflicts of interest Complaints and appeals: examples and fraud from India and abroad

B. Software tools

Use of plagiarism software like Turnitin, Urkund and other open source software tools.

Unit VI: Databases and Research Metrics

A. Databases

Indexing data bases Citation data bases: Web of Science, Scopus, etc.

B. Research Metrics

Impact Factor of journal as per journal citation report, SNIP, SJR, IPP, Cite Score. Metrics: h-index, g index, i10 index, altmetrics

Suggested Readings:

1. Bird, A. (2006). Philosophy of Science. Routledge.
2. Ethics and Values in Industrial-Organizational Psychology By Joel Lefkowitz Lawrence Erlbaum Associates, 2003.
3. MacIntyre, Alasdair (1967) A Short History of Ethics. London.
4. Research Ethics: A Psychological Approach By Barbara H. Stanley; Joan E. Sieber; Gary B. Melton
5. Research Methods in Applied Settings: An Integrated Approach to Design and Analysis By Jeffrey A.
6. Gliner; George A. Morgan Lawrence Erlbaum Associates, 2000
7. The Ethics of Teaching and Scientific Research By Miro Todorovich; Paul Kurtz; Sidney Hook.