

Syllabus for Ph.D. Course Work in Economics

(To be effective from Academic Session 2021-2022)



Patliputra School of Economics
&
Aryabhatta Knowledge University

Course Structure

<i>Course Code</i>	<i>Course Title</i>	<i>Credits</i>
ECPHD101	Research Methodology	4
ECPHD102	Advanced Quantitative Methods with Software Applications	4
ECPHD201	Preparation & Presentation of Research Proposal	4
Total Credits		12

Detailed Syllabus

Course Title:	Research Methodology	Course Code:	ECPHD101
Semester:	1 st	Credits:	Four (4)

Unit I: Research: A Conceptual Framework (10 hours)

- Research: meaning and concept
- Scientific method of inquiry and basic steps of research
- Research approaches – fundamental, applied and action research
- Philosophical research, historical research, development research, case study ethnography, documentary analysis, narrative analysis, grounded theory
- Quantitative, qualitative and mixed methods of research – their relative merits and demerits
- Ethical issues in research – anti-plagiarism and copyright issues
- Intellectual property rights

Unit II: Fundamentals of Computer and Computer Applications (35 hours)

- Basic knowledge about hardware devices – computer processing principles
- Concepts of binary system and decimal system – representation of a decimal number in binary system and vice-versa
- WINDOWS Operating System: getting started with files and folders
- Documentation using MS Word – report writing with charts, tables, graphs, maps, etc.
- Data management within a MS Excel worksheet – use of functions
- Creating charts (line, column, pie, scatter) and formatting different components of a chart
- Generating appropriate charts describing various published data sets on Indian economy
- Use of codes in survey questionnaires to facilitate data entry in a data sheet
- Data entry from a questionnaire, checking data validity using conditional formatting
- Understanding different shapes of line diagram corresponding to various functional forms between two variables
- Generating random numbers between specified intervals in MS Excel
- Use of random numbers in sample selection – practical exercises
- Statistical data analysis using MS Excel
- Internet and its applications – using advanced search techniques, online research repositories, online journals, open educational resources, Shodhganga, ResearchGate, Jstor, INFLIBNET, online research tools and platforms such as Google questionnaire, survey-monkey, etc.
- Introduction to econometric software packages (STATA/EViews/SPSS) for analysis of socio-economic data

- Extraction and tabulation of NSSO unit-level data and NFHS data

Unit III: Data Collection & Designing a Survey (8 hours)

- Nature of Data – primary and secondary, quantitative and qualitative, features of cross section, time series and panel data, measurement scales
- Socio-economic field surveys – objectives of field survey, sample selection; questionnaire design, collection of sensitive information, and duration of field survey
- Data preparation for analysis using software – quality and consistency checks

Unit IV: Database Issues Relating to Indian Economy (7 hours)

- Different data sources and their characteristics - C.S.O., National Sample Surveys, National Accounts Statistics, National Family Health Surveys, Indian Public Finance Statistics, R.B.I. publications, World Bank and IMF databases, UNCTAD statistics, CMIE databases, Annual Survey of Industries, Census & other government publications, and Indiatat.com.
- Limitations of existing databases of India – assessment of reliability and inter-temporal comparability of secondary data.

References

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Winston, Wayne L, *Microsoft Excel 2016 Data Analysis and Business Modeling*, Microsoft Press, USA, 2016.

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Lee, Cheng-Few et al., *Statistics for Business and Financial Economics*, Springer, USA, 2013.

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Adkins, Lee C & R Carter Hill, *Using Stata for Principles of Econometrics*, John Wiley & Sons, New York, 2011.

Hamilton, Lawrence C, *Statistics with Stata*, Cengage Learning, USA, 2013.

Course Title:	Advanced Quantitative Methods with Software Applications	Course Code:	ECPHD102
Semester:	1 st	Credits:	Four (4)

About the Course: *This course will familiarize the students with various statistical and econometric tools and techniques of research that are applied in economics. It will also help to develop skills for analysis of cross-section, time-series and panel data. The students will be provided hands-on-training towards applications of some econometric software packages for analysis of data.*

Unit I: Classical Linear Regression Model: Stages in Empirical Research, Assumptions of CLRM and Estimation; Regression Diagnostics and Specification: Misspecification; Functional Forms; Model Selection; Nonlinear Methods of Estimation; Method of Maximum Likelihood; Applications Using a Software Package. **(10 hours)**

Unit II: Stochastic Regressors and Instrumental Variables Method: Endogeneity Problem; Instrumental Variable Estimation; Generalized Method of Moments (GMM); Applications Using a Software Package. **(6 hours)**

Unit III: Models of Limited Dependent and Qualitative Variables: Logit and Probit Models; Censoring, Truncation and Selection Bias (Tobit model, Heckman correction); Multinomial Regression Models; Applications Using a Software Package. **(8 hours)**

Unit IV: Time Series Econometrics - Stationary and Non-stationary Time Series; Trend-stationary and Difference-stationary Series; Tests for Stationarity; Cointegration and Error-correction Mechanism; ARIMA Forecasting; Vector Autoregressive (VAR) Model; Forecasting Using VAR; Causality Tests; ARCH/GARCH for Modelling Volatility; Applications Using a Software Package. **(12 hours)**

Unit V: Basic Panel Data Models – Constant Coefficients, Fixed Effects and Random Effects Models; Hausman Test; Applications Using a Software Package. **(6 hours)**

Unit VI: Dynamic Panel Data Models: Dynamic Heterogeneous Panels; Non-stationary Panels; Panel Unit Root and Cointegration Tests; Estimation of Dynamic Panel Models; Applications Using a Software Package. **(6 hours)**

Unit VII: Alternatives to OLS Regression: Quantile Regression; Multivariate Regression; Seemingly Unrelated Regression; Applications Using a Software Package. **(6 hours)**

Unit VIII: Multivariate Analysis and Indexing: Discriminant Analysis; Factor Analysis; Principal Components Analysis; Applications Using a Software Package. **(6 hours)**

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Course Title:	Preparation and Presentation of Research Proposal	Course Code:	ECPHD201
Semester:	2 nd	Credits:	Four (4)
Class Hours: 4 hours per week in the form of personal contact with the Supervisor / Co-Supervisor			

This course intends to develop writing and oral presentation skills of PhD scholars while preparing them to write their respective research proposals. After completing this course, the scholars would be ready to pursue their thesis works in accordance with the research proposals approved in course of this semester. This paper would consist of two parts:

Part I: Comprehensive Review of Literature [2 credits]

Each PhD scholars would be required to write a comprehensive review of literature (RL) on her/his identified area of research. The RL would help the scholar to understand the research gaps on the chosen area of research, and identifying a set of issues (questions) that require further probing by the scholar. The RL should be analytical, and should provide a critical account of the past literature on the subject of research. The scholar is also expected to summarize the debate on various issues related to the chosen research area. As regards the style of presentation, the RL should provide the ‘issue-based’ discussion rather than providing a ‘running-commentary’ on past studies. Ideally, the RL should be written in about 7,500 to 10,000 words (30 to 40 pages). For evaluation, the write up of RL would carry a weight of 70% and seminar presentation on it would carry 30% weight.

Part II: Preparation and Seminar Presentation of Research Proposal [2 credits]

The research proposal on the topic chosen by the scholar for her/his PhD shall be submitted as per the recommended writing discipline. Each scholar would be required to articulate in about 1,500 words her/his individual subject of study in the intended area of research. The research proposal is supposed contain an introduction or background of study, brief review of existing literature, the objectives of research study, data base, methodology, hypotheses, plan of the study, and select bibliography. The written submission on the chosen topic would be evaluated for 70 percent weight and the seminar presentation on it for 30 percent weight.

Additional Courses for the Ph.D. Scholars

Based upon the recommendation of the supervisors, the Ph.D. scholars may be allowed to opt for additional theory/quantitative courses from the basket of courses designed for the M.A. (Economics) students. The scholars opting for such courses would be required to attend the classes with the M.A. students. Further, such additional courses shall be of non-credit nature.