MAHARSHI DAYANAND UNIVERSITY ROHTAK
DEPARTMENT OF COMMERCE

Scheme of Examinations for Ph. D. Course Work (Commerce)
(W.e.f Session 2023-24)
(Updated Session 2026-27)

Ph.D. Course Work in Commerce
Duration: One Semester (Six Months)
Total Credit requirement: 12 credits

Program Outcomes (PO):

PO1. Scholars would be able to demonstrate the ability to acquire skills to perform independent advanced research.

PO2. Demonstrate ability to identify and seek out resources and information; apply these to guide research plan development.

PO3. Demonstrate the ability to master and/or innovate research methodologies, and techniques.

PO4. Scholars would be able to make an original and substantial contribution to the knowledge.

PO5. Demonstrate independent thinking and creativity.

Program Specific Outcomes (PSO):

PSO1.To educate the students about how to select a research topic.

PSO2.To instruct the students about how to write a literature review and to inform the students about in-depth understanding of Research Methodology as well as to facilitate them to carry out research in a systematic manner.

PSO3. To educate the students about importance of quantitative and qualitative techniques used in research.

PSO4. To develop and execute original research plan(s).

PSO5. Ability to produce publish able research articles/documents/reports in the field of public sector and corporate world. Students would be successful entrepreneurs as well.

SEMESTER-I

Paper Code	**Title of the Paper**	**Max. Marks and Credits**				
		Theory Marks	Int. Ass. Marks	Total Marks	Hours/ Week	Credits
23COMPHD11C1	Research Methodology	70	30	100	4	4
23CCPH11C1	Research and Publication Ethics	35	15	50	2	2
23COMPHD11C3	Quantitative Techniques	70	30	100	4	4
23COMPHD11C4	Financial Econometrics	35	15	50	2	2
Total				300		12

Note:

1. The course on ‘Research and Publication Ethics’ shall be offered by Ch. Ranbir Singh Institute of Social and Economic Change for all UTDs/Canters/Institutes passed vide

Resolution No. 27 of the 271st meeting of EC held on 29.7.2020.

2. Each course shall have an internal assessment of 30%. It shall comprise of two written assignments (10 marks each) and two presentations (5 marks each). The concerned teacher / Head of the Department shall maintain the record for at least six months after the declaration of results.

Ph.D. Course Work w.e.f. the session 2023-24

Semester - I

Paper Code 23COMPHD11C1

Research Methodology

Marks of Theory:70
Internal Assessment:30
Credits:4
Time: 3hours

Course Objectives:

1. Students would understand a general definition of research design.
2. Students would know the importance of academic research.
3. Students would be able to identify the overall process of designing a research study from its inception to its report.
4. Students would be familiar with ethical issues in academic research, including those issues that arise in using quantitative and qualitative research.
5. Students would know the primary characteristics of quantitative research and qualitative research.

Course Outcomes: Students should be able to

1. Understand Exploratory (or Formulative) Research Studies, Hypothesis Testing, Sampling Techniques or Methods: Probability Sampling, Non-probability Sampling
2. Identify and discuss the complex issues inherent in selecting a research problem and hypothesis formulation.
3. Select an appropriate research design.
4. Write a research proposal, report and thesis.
5. Study about Precautions in Interpretation, Findings, Graphic Presentation, Diagrams, Pictures and Maps, Tabular Presentation, Difficulties in Presentation, Report Writing etc.

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 7 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 14 marks each.

Unit – I

Research: Meaning, characteristics, types and significance and relevance of research in business; characteristics of good research; identification and formulation of research problems; setting research objectives.

Hypothesis: meaning, types, need, sources and process of setting hypothesis; importance and format of review of literature.

Meta analysis: elementary knowledge with software.

Unit – II

Research Design: Meaning, features, need for research design, component of research design: exploratory, descriptive & causal studies;

Population & sample; meaning and types of sampling; sample size; sampling error; the research proposal.

Unit – III

Measurement & scaling techniques; Types of scale; criteria for good measurement; attitude measurement—Likert's scale, Semantic Differential scale, Thurston-equal appearing interval scale, Multi-Dimensional scaling;
Collection of Data: meaning and types of data; data collection methods - observation, survey and interview; questionnaire design; reliability and validity of questionnaire.
Basic operational knowledge of CMIE-PROWESS, Bloomberg or any other relevant software.

Unit – IV

Editing, coding, classification and tabulation of data; Methods of data presentation; interpretation of results- forms, prerequisites, precautions, conclusions and generalizations, sources of errors. Report writing—purpose, steps and format of research report; final presentation of the research report; idea of referencing, bibliography, footnotes and end notes; Basic knowledge of Mendeley.
Types of articles/types of academic papers; Original research papers/Analytical papers, Review Article, Clinical case study, Persuasive, Critical, Descriptive/Conceptual.

References:

1. Cooper, D. R., & Schindler, P. S. (2014). *Business research methods.* McGraw-Hill.
2. K N Krishnaswamy, Appa Iyer Sivakumar and M. Kathirajan, *Management Research Methodology*, New Delhi : Pearson
3. K.V.Rao, *Research Methodology in Commerce and Management*, New Delhi : Sterling
4. Wilkinson, T. S., &Laldas, D. K. (2010). *Methodology & Techniques Of Social Research.* Himalaya Publishing House.
5. Kothari, C. R. (2017). Research Methodology methods and techniques second edition.

Ph.D. Course Work w.e.f. the session 2023-24

Semester - I

Paper Code 23CCPH11C1

Research and Publication Ethics

The course on 'Research and Publication Ethics' shall be offered by Ch. Ranbir Singh Institute of Social and Economic Change for all UTDs/Canters/Institutes passed vide Resolution No. 27 of the 271st meeting of EC held on 29.7.2020.

Ph.D. Course Work w.e.f. the session 2023-24

Semester - I

Paper Code 23COMPHD11C3

Quantitative Techniques

Marks of Theory: 70
Internal Assessment: 30
Credits: 4
Time: 3hours

Course Objectives:

1. Explain and discuss the researcher's work (model).
2. Elucidate basic statistical concepts and tests used in academic research.
3. Demonstrate their competence and confidence in using inferential statistics in general and to the use of significance testing in particular.
4. Understand and master the handling of data and employ proper analyses.
5. Use output derived from statistical procedures and converts such output to understand statement.

Course Outcomes: Students should be able to

1. Understand the meaning, assumptions and application of various tools and techniques.
2. Select an appropriate statistical technique.
3. Understand bivariate and multivariate data analysis.
4. Use different statistical software like SPSS,EViews etc.
5. Analyze and interpret the results for their thesis/publications of a research article.

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 7 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 14 marks each.

Unit – I

Descriptive and Inferential Statistics, Statistical tools for Data analysis-Univariate, Bi-Variate & Multivariate analysis, Hypothesis testing, parametric tests: t-test, z-test and F-test, Significance of non-parametric tests (Chi-square test,Kruskal–Wallis *H* test,Mann-Whitney U-test).

Unit – II

Analysis of Variance (ANOVA), Analysis of Covariance (ANCOVA),Multivariate analysis of variance (MANOVA),Multivariate analysis of covariance (MANCOVA).

Unit – III

Correlation Analysis, Simple Linear Regression Analysis, Multiple Linear Regression Analysis, Regression with Dummy Variables, Logistic Regression.

Unit – IV

Discriminant Analysis, Exploratory and Confirmatory Factor Analysis, Structural Equation Modeling, Path Analysis.

Note: Students are required to use statistical software's like SPSS, AMOS, EViews, RStudio, Stata, Minitab etc. while carry out multivariate techniques.

References:

1. Malhotra, N. K., & Dash, S. (2016). *Marketing research: An applied orientation*. Pearson.
2. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. (2006). Multivariate Data Analysis: Pearson Education. *New Jersey: Hoboken*.
3. Gupta, S. P., & Gupta, M. P. (2007). Business Statistics Sultan Chand and Sons. *New Delhi*.
4. Chandan, J. S. (2009). *Statistics for business and economics*. Vikas Publishing House.

5 Gujarati, D. N. (2009). *Basic econometrics*. Tata McGraw-Hill Education.

Ph.D. Course Work w.e.f. the session 2023-24
Semester – I
Paper Code 23COMPHD11C4
Financial Econometrics

Marks of Theory: 35
Internal Assessment: 15
Credits: 2
Time: 3 hours

Course Objectives:

1. To learn the basic characteristics of time series data
2. To learn the basic characteristics of panel data
3. Provides a comprehensive knowledge to do empirical work with financial data and measuring volatility in financial time series
4. To learn econometric techniques for time series and panel data
5. To learn econometric modeling with real world data and do economic forecasting

Course Outcomes: Students should be able to

1. Understand basics of econometric modeling.
2. Understand Time Series Econometrics.
3. Understand about the Panel data.
4. Conduct empirical applications of financial and economic theory based on real financial data using statistical/econometric techniques.
5. Use Panel data for financial modeling.

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 7 small questions of one marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 7 marks each.

Unit – I

Stochastic Process , Unit Root Stochastic Process, Non-stationary time series , Unit Root Test, Transforming Non stationary Time Series ,

Unit – II

Autoregressive Distributed Lag (ARDL) models, Cointegration, Causality in time series,

Unit – III

ARMA models, ARIMA models, ARCH and GARCH models

Unit – IV

Introduction to Panel Data Models: Pooled OLS, Fixed Effects Model, Random Effects Model, Dynamic Panels,

References:

1. Gujarati, D. N. (2009). *Basic econometrics*. Tata McGraw-Hill Education.
2. Brooks, C. (2019). *Introductory econometrics for finance*. Cambridge university press.
3. Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press.
4. Arellano, M. (2003). *Panel data econometrics*. Oxford university press.
5. Pesaran, M. H. (2015). *Time series and panel data econometrics*. Oxford University Press