

RESEARCH PUBLICATION AND ETHICS

Course structure

(2 Credits)

- The course comprises of six modules listed in table below. Each module has 4-5 units.

Modules	Unit title	Teaching hours
Theory		
RPE 01	Philosophy and Ethics	4
RPE 02	Scientific Conduct	4
RPE 03	Publication Ethics	7
Practice		
RPE 04	Open Access Publishing	4
RPE 05	Publication Misconduct	4
RPE 06	Databases and Research Metrics	7
	Total	30

Syllabus in detail

THEORY

- RPE 01: PHILOSOPHY AND ETHICS (3 hrs.)**
 - Introduction to philosophy: definition, nature and scope, concept, branches
 - Ethics: definition, moral philosophy, nature of moral judgements and reactions
- RPE 02: SCIENTIFIC CONDUCT (5hrs.)**
 - Ethics with respect to science and research
 - Intellectual honesty and research integrity
 - Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP)
 - Redundant publications: duplicate and overlapping publications, salami slicing
 - Selective reporting and misrepresentation of data
- RPE 03: PUBLICATION ETHICS (7 hrs.)**
 - 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 contributorship
 - Identification of publication misconduct, complaints and appeals
 - Predatory publishers and journals

PRACTICE

- RPE 04: OPEN ACCESS PUBLISHING(4 hrs.)**
 - Open access publications and initiatives

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

- **RPE 05: PUBLICATION MISCONDUCT (4hrs.)**

- A. Group Discussions (2 hrs.)**

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

- B. Software tools (2 hrs.)**

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

- **RPE 06: DATABASES AND RESEARCH METRICS (7hrs.)**

- A. Databases (4 hrs.)**

1. Indexing databases
2. Citation databases: Web of Science, Scopus, etc.

- B. Research Metrics (3 hrs.)**

1. Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score
2. Metrics: h-index, g index, i10 index, altmetrics

SYLLABUS
Pre-Ph.D. Course Work: FACULTY OF ARTS
Paper I: Research Methodology

Max. Marks: 100

No. of Credits: 4
Min. Passing Marks: 55

Unit-I: Idea of Research, Objectives and Significance of Research, Research Methods and Methodology, Types of Research, Identification and Formulation of Research Problem, Research Questions, Research Design and Review of Literature.


Unit-II : Hypothesis and Hypothesis testing, Sample, Sampling Frame, Sample Units, Sampling Method, Characteristics of a good Sample , Choice of Sampling Method , Statistical Inferences, Parameters & Statistics, Types of Sampling , Advantages and Limitations of Sampling.

Unit-III : Data: Concept and its types , Data Analysis and Descriptive Statistics, Measures of Central Tendency – Mean, Mode and Median, Tabulation and Generalization, SPSS, Techniques for data collection: Limitations and Cautions, Observation Technique, Different tools and their developmental procedures: Questionnaires, Schedules, Inventories and Interviews.

Unit-IV : Report Writing , Principles and techniques of Writing Good Research Paper , Writing a research proposal, Preliminaries-preface and acknowledgement, list of tables and illustrations, Documentation (Quotations paper, Abstract, Review, Footnotes, back notes, Citation styles, Bibliography, pagination and Appendix) , the application of Information and Communication Technologies in Research, Plagiarism and Academic Integrity.


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Syllabus Details of Pre- Ph.D Coursework (Commerce)

Programme: Pre- Ph.D Commerce		
Subject: Commerce		
Course Code: Paper 1		Course Title: Research Methodology
Course outcomes: The objective this course is to help students design and carry out research, as well as, the application of statistical tools and techniques for decision making.		
Credits: 04		Core Compulsory/Elective: Compulsory
Max. Marks: 30+70		
Total No. of Lectures:60		
Unit	Topics	No. of Lectures
I	Overview of Research in Commerce: Meaning and Objectives of Research; Process of Research; Types of Research; Research Approaches; Selection and Formulation of a Research Problem; Criteria of a Good Research Problem. Significance of research in social sciences.	8
II	Hypothesis and Research Design: Concept, Sources and Types of Hypotheses; Formulation of Hypothesis; Qualities of a Workable Hypothesis; Usefulness of Hypothesis in Research; Uses of Research Design; Steps in Preparing a Research Design; Exploratory or Formulative Design; Descriptive and Diagnostic Design; Experimental Research Design.	12
III	Sampling Technique: Sampling theory- Types of sampling-Steps in sampling-Sampling and Non-sampling error-Sample size –Advantages and limitations of sampling.	8
IV	Measurement and Basic Scaling Techniques: Normal, ordinal, interval, ratio scales, measuring attitudes – Summated rating scale (Likert scale), semantic differential scale, Reliability-Split-half test and retest. Cronbach alpha, Validity, Content/face, construct validity – Convergent discriminant.	10
V	Statistical Inference: Estimation-Point and Interval Estimation, Qualities of a Good Estimator; Theory of Testing of Hypothesis-Statistics and Parameter, Statistical Hypothesis, Tests of Significance, Types of Errors in Testing of Hypothesis, Level of Significance-Confidence Interval and Confidence Limits, Two tailed and One tailed Tests, Standard Error and its Utility, Degrees of Freedom, Test Statistics, Critical Values, Acceptance and Rejection Regions; Procedure for Hypothesis Testing	12
VI	Interpretation and Report Writing: Meaning and Importance of Interpretation; Pre-requisites of Interpretation; Errors in Interpretation; Essentials of a Good Research Report; Types of Reports; Layout of a Research Report; Writing up of the Report; Evaluating a Research Report.	10
References:		
<ol style="list-style-type: none"> 1. Donald R.Cooper, Pamela S.Schindler, Business Research Methods, Tata McGraw Hill Publishing 2009 2. Uma Sekaran, Research Methods for Business Wiley India2007 3. Nandagopal, Arul Rajan Vivek, Research Methods in Business Excel Book 2007 4. Wiliam G Zikmud, Business Research Methods, Cengage Learning 2008 5. Paneerselvam, Research Methodology, Prentice Hall of India 2009 		

SYLLABUS
Faculty of Sciences
 Sri Dev Suman Uttarakhand University

Pre Ph.D. COURSE WORK: CORE PAPER

Paper I (C001) RESEARCH METHODOLOGY

UNIT I

Introduction to Research: Definition and purpose of research; Types of research (basic, applied, experimental, non-experimental); Retrospective and Prospective research; Formulating research questions and hypotheses; Components of synopsis for Ph.D. research topic. **Research Design:** Experimental vs. non-experimental designs. **Data Collection Methods:** Qualitative vs. quantitative data; Surveys, interviews, observations, and experiments; Validity and reliability in data collection.

UNIT II

Introduction to Scientific Writing; Rationale of a study; Structure and components of a research paper; Citation styles (APA, MLA, Chicago); DOI. **Manuscript Submission and Publication:** Selecting appropriate journals; Peer-review process; Open access vs. traditional publishing. **Types of Scientific Write-ups:** Research proposals, literature reviews, book chapters; Review and research papers, conference papers; Scientific & feature articles and technical reports. **Plagiarism:** Avoiding plagiarism; Turnitin and Urkund.

UNIT III

Citation Metrics: Citation count, h-index, g-index, i-10 index, altmetrics; Impact factor of journal as per Journal Citation Report (JCR). **Citation Databases and Journal Indexing:** Directory of Open Access Journals (DOAJ), JSTOR, IEEE Xplore, Science Direct, PubMed/MEDLINE, Google Scholar, ResearchGate, ORCID, UGC CARE (List I & II journals), Web of Science, Scopus.

UNIT IV

Research Ethics: Informed consent; Confidentiality and privacy. **Handling animal subjects:** Ethical Treatment; Housing and Maintenance; Handling and Procedures; IACUC Approval; Record-Keeping. **Intellectual Property Rights (IPR):** Copyright, patents, trademarks; Ethical considerations in intellectual property; Salient features of Indian and

international laws of IPR. **Scientific Misconduct:** Fabrication, falsification, plagiarism, misrepresentation; Duplicate publication, conflict of interest; Research mismanagement, biased reporting; Ethical violations in human or animal research; Peer review manipulation, data theft, and misuse.

Unit V

Introduction to Statistics in Research: Statistics as a Tool in Research. **Research Engines in Studies:** Role of Various Research Engines; Merits and Demerits of Statistics in Research. **Descriptive Statistics:** Measures of Central Tendency; Measures of Dispersion; Frequency Distributions. **Inferential Statistics:** Hypothesis Testing; Null Hypothesis; Statistical Significance; Degrees of Freedom; T-tests; ANOVA Regression Analysis; Correlation Analysis. **Data Analysis Tools:** Introduction to Statistical Software: SPSS, SAS, MATLAB, R Studio, Excel and NVivo. **Search engines:** Google, Bing, Yahoo, DuckDuckGo, Baidu, Yandex, etc.

SUGGESTED READINGS:

1. Alley, M. (2013). *The Craft of Scientific Presentations: Critical Steps to Succeed and Critical Errors to Avoid*. Netherlands: Springer New York.
2. Bos, J., Hoeneveld, F., van Steenbergen, N., Abma, R., van Meijl, T., & Lepianka, D. (2020). *Research Ethics for Students in the Social Sciences*. Germany: Springer International Publishing.
3. Daniel, P. S., & Sam, A. G. (2011). *Research Methodology*. New Delhi, India: Gyan Publishing House.
4. Davis, M., Davis, K. J., Dunagan, M. (2012). *Scientific Papers and Presentations*. Netherlands: Elsevier Science.
5. Fritsch, E. J., Trulson, C. R., Blackburn, A. G. (2012). *Applied Research Methods*. United Kingdom: McGraw-Hill Education.
6. Le, C. T., Eberly, L. E. (2016). *Introductory Biostatistics*. United Kingdom: Wiley.
7. Misra, R. P. (1989). *Research Methodology: A Handbook*. New Delhi, India: Concept Publishing Company.
8. Mukherjee, S. P. (2019). *A Guide to Research Methodology: An Overview of Research Problems, Tasks and Methods*. United States: CRC Press.
9. Sharma, S. (2016). *Research Methodology and Biostatistics - E-book: A Comprehensive Guide for Health Care Professionals*. India: Elsevier Health Sciences.
10. Sullivan, L. M. (2008). *Essentials of Biostatistics Workbook: Statistical Computing Using Excel*. United Kingdom: Jones and Bartlett Publishers.
11. Thomas, C. G. (2022). *Research Methodology and Scientific Writing*. Switzerland: Springer International Publishing.

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