

# Ph.D. Course Work Mandatory Subject

(Common for Engineering, Basic Science, MCA and MBA)

## RM 01: RESEARCH AND PUBLICATION ETHICS

**Philosophy, Ethics And Scientificconduct:** Introduction to philosophy: definition, nature and scope, concept, branches - Ethics: definition, moral philosophy, nature of moral judgements and reactions. 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.

**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 behaviour and vice versa, types - Violation of publication ethics, authorship and contributor ship - Identification of publication misconduct, complaints and appeals-Predatory publisher and journals.

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

### Publication Misconduct

- a) Subject specific ethical issues, FFP, authorship
- b) Conflicts of interest
- c) Complaints and appeals: examples and fraud from India and abroad Software tools: Use of plagiarism software like Turnitin, Urkund and other open source software tools.

**Databasesandresearchmetrics :** Databases :Indexing databases ,Citation databases: Web of Science, Scopus, etc. Research Metrics:Impact Factor of journal as per Journal Citations Report, SNIP, SJR, IPP, Cite Score-Metrics:h-index,gindex,i10Index,altmetrics.

### References

1. Nicholas H. Steneck. Introduction to the Responsible Conduct of Research. Office of Research Integrity. 2007.Availableat:<https://ori.hhs.gov/sites/default/files/rcrintro.pdf>
2. TheStudent'sGuide toResearchEthicsByPaulOliverOpenUniversityPress,2003
3. Responsible Conduct of Research By AdilE. Shamoo;David B.Resnik Oxford University Press,2003
4. Ethics in Science Education, Research and Governance Edited by Kambadur Muralidhar,Amit Ghosh Ashok Kumar Singhvi. Indian National Science Academy, 2019. ISBN :978-81-939482-1-7.
5. Anderson B.H., Dursaton, and Poole M.: Thesis and assignment writing, Wiley Eastern1997.
6. BijornGustavii: How to write and illustrate scientific papers? Cambridge UniversityPress.
7. BordensK.S.andAbbott,B.b.:ResearchDesignandMethods,McGrawHill,2008.
8. Graziano, A., M., and Raulin, M.,L.: Research Methods – A Process of Inquiry, SixthEdition,Pearson,2007.

# **Ph.D. Course Work Mandatory Subject**

## **(Common for Medical and Dentistry)**

### **RM02: Research Methodology for Health Sciences**

Scientific Research is the crucial element in the field of evidence based medicine to advance medical science with conscience and for the improvement further. It is essential among the faculty, Postgraduates and undergraduates to have the understanding and skills of undertaking a scientifically valid and ethically sound research.

#### **Specific learning objectives**

- a) Understand the need for research and identify health research question- reason for undertaking research, illustration of contexts for formulating research question.
- b) Enable to undertake literature search through searching abstracts and access full-text articles using appropriate online resources. Enable search of articles from offline journals, online resources such Google Scholar, PLoS medicine, etc.
- c) Develop aim & objectives appropriate to achieve the outcomes- elements of objectives, nature of the same
- d) Select appropriate study design suitable for health research.- descriptive, longitudinal, analytical, experimental- randomized trials
- e) Develop proposal for a primary research project- synopsis in IMRAD format and references and annexure
- f) Identify different research challenges encountered and discuss ways to address them- ways to identify answers to questions.
- g) Describe the process of conducting ethical health research- importance of ethical consideration, participant's consent, and different contexts.
- h) Learn to know and use analytical software package such as MS Excel for data analysis, data entry, assorting the data and analysis
- i) Demonstrate writing skill for the protocol- the nature of the content, word count, chronology, reference writing, etc

## **Course contents**

1. Introduction to research – The role of research, research process overview
2. Review of literature – Literature search, critical appraisal and methods of writing
3. Understanding Concepts, Constructs, Variables, and Definitions
4. Problems and Hypotheses – Defining the research problem, Formulation of the research hypotheses, The importance of problems and hypotheses
5. Research design – Experimental and Non-experimental research design, Field research, and Survey research
6. Methods of data collection – Secondary data collection methods, qualitative methods of data collection and Survey methods of data collection
7. Attitude measurement and scaling – Types of measurement scales; Questionnaire designing – Reliability and Validity
8. Sampling techniques – The nature of sampling, Probability sampling design, Nonprobability sampling design, Determination of sample size
9. Processing and analysis of data
10. Ethics – GCP guidelines, ICMR guidelines, Ethical review process, Ethics committee, Ethical and legal issues in conducting research, publication ethics
11. Report generation and scientific writing – Title page, Abstract, Introduction, Methodology, Results, Discussion, References, and Appendices
12. Clinical trial registry