

SVKM's Narsee Monjee Institute of Management Studies
Shobhaben Pratapbhai Patel School of Pharmacy & Technology Management, Mumbai

Program: Ph. D. Course work (Pharm. Sciences)				Semester: I	
Course: Research Methodology				Code:	
Teaching Scheme				Evaluation Scheme	
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks- 100 in Question Paper)
4	0	0	4	Marks Scaled to 50	Marks Scaled to 50
Pre-requisite: Basics knowledge with respect to research					
Objective: The aim of this course is to develop skills to understand and carry out systematic research and be aware of the ethics involved. It also aims to develop content and organize research papers and project proposals.					
Outcomes: After completion of the course, the student will be able to - <ol style="list-style-type: none"> 1. Explain different types of research, data collection and analysis 2. Apply knowledge of various literature sources to design research proposal 3. Design preclinical and clinical study based on various guidelines 4. Apply knowledge of softwares, computer simulations in research 					
Detailed Syllabus					
Part A					
Unit	Description				Duration in hours
1.	Introduction to Research Methods <ul style="list-style-type: none"> • Definition, characteristics, objectives, types and challenges of research • Research problem- Sources, steps in defining research problem Basic Reading <ul style="list-style-type: none"> • Gall, M. D., Gall, J. P., & Borg, W. R. Educational research: An introduction (8th ed.). Boston: Allyn & Bacon. 2006. Advanced Reading <ul style="list-style-type: none"> • Smart Melville and Wayne Goddard, <i>Research Methodology: An introduction or Science and Engineering Students</i>, Juta & Co. Ltd., 2019 				05
2.	Research Design <ul style="list-style-type: none"> • Need for research design and features of good design • Different research designs 				05



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	<ul style="list-style-type: none"> Hypothesis- Importance, characteristics of good hypothesis, types, process of defining hypothesis <p>Basic Reading</p> <ul style="list-style-type: none"> N. J. Salkind, Encyclopedia of research design . SAGE Publications, Inc., 2010. <hr/> <p>Research Design: Qualitative, Quantitative, and Mixed Methods Approaches by John W. Creswell. SAGE Publications Inc.2014.</p> <hr/> <p>Advanced Reading</p> <ul style="list-style-type: none"> Shin, Y., & Lu, Y. (2017). Hypothesis formulation. In M. Allen (Ed.), <i>The sage encyclopedia of communication research methods</i> (pp. 675-677). SAGE Publications, Inc, https://dx.doi.org/10.4135/9781483381411.n238 Ranjit Kumar <i>Research Methodology a step by step guide for beginners</i>, Pearson Publications, 2021 	
3.	<p>Literature Search and Review</p> <ul style="list-style-type: none"> Importance Planning, Literature Search Process Literature search tools-Library Catalogues, Databases, Web Search, Gateways and Portals Referencve nmmanagement systems Documentation Case studies <p>Basic Reading</p> <ul style="list-style-type: none"> Diana Ridley, <i>The Literature Review A step by step guide for students</i>, 2nd ed., Sage Publishers, 2012. https://www.rcn.org.uk/library/Support/Literature-searching-and-training/How-to-undertake-a-literature-search <p>Advanced Reading</p> <ul style="list-style-type: none"> Philippa Ojimekwe (2018). Literature Review, sources and methodologies. <i>Conference: Train the trainers workshop</i>. DOI: 10.13140/RG.2.2.25544.83203 Anju Grewal, Hanish Kataria, and Ira Dhawan. Literature search for research planning and identification of research problem. <i>Indian J Anaesth</i>. 2016 Sep; 60(9): 635-639. 	10
4.	<p>Development of Research Proposal</p> <ul style="list-style-type: none"> Elements of a proposal Criteria of sources and definition 	05

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	<ul style="list-style-type: none"> Objectives and characteristics Research hypotheses Identifying funding agencies <p>Basic Reading</p> <ul style="list-style-type: none"> https://www.umass.edu/cfr/grant-writing/basic-components-proposal K Sudheesh, Devika Rani Duggappa, and SS Nethra. How to write a research proposal? Indian J Anaesth. 2016 Sep; 60(9): 631-634. <p>Advanced Reading</p> <ul style="list-style-type: none"> Locke, L. F., Spirduso, W. W., & Silverman, S. J. Proposals that work: A guide for planning dissertations and grant proposals . Sage Publications, 2013. 	
5.	<p>Research Communication Scientific articles/Research papers/articles</p> <ul style="list-style-type: none"> Basic structure Types Writing Publication process <p>Basic Reading</p> <ol style="list-style-type: none"> Leslie A. Baxter, Earl Babbie (2003). Basics of communication research. Cengage Learning, ISBN: 9781285400808, 1285400801 <p>Advanced Reading</p> <ol style="list-style-type: none"> Stephen M.C. and Daniel C.M. (2015). Understanding Communication Research Methods 	05
	Part B	
6.	<ul style="list-style-type: none"> Research involving animals , various guidelines related to preclinical research Research involving human subjects, various guidelines related to clinical research Designing protocols for preclinical and clinical studies <p>Basic Reading</p> <ul style="list-style-type: none"> https://cpcsea.nic.in/Content/55_1_GUIDELINES.aspx https://arriveguidelines.org/ <p>Advanced Reading</p> <ul style="list-style-type: none"> https://main.icmr.nic.in/sites/default/files/guidelines/ICMR_Ethical_Guidelines_2017.pdf 	12



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7.	<ul style="list-style-type: none"> • Council for International Organizations of Medical Sciences (CIOMS) guidelines • International Committee of Medical Journal Editors (ICMJE) recommendations <p>Basic Reading</p> <ul style="list-style-type: none"> • https://cioms.ch/ • https://www.icmje.org/ 	02
8.	<p>Research funding</p> <ul style="list-style-type: none"> • National research funding agencies • International research funding agencies 	02
9.	<p>Computer applications in Pharmaceutical Sciences Study of Softwares/web platforms used for-</p> <ul style="list-style-type: none"> • Drawing of chemical structures • Reference management • Statistics • Animal studies • Computer aided drug design • Clinical studies <p>Computational tools for ligand interactions and molecular dynamics, molecular modelling and structure activity relationship, pharmacokinetics, behavioural studies</p>	12
10.	<p>Report Writing</p> <ul style="list-style-type: none"> • Structure of report • Abbreviations • Nomenclatures • Indexing <p>Basic Reading</p> <p>1. Arka Bhattacharya (2015). A Handbook of Report Writing. ISBN: 978-9352250035. Books Way</p> <p>Advanced Reading</p> <p>1. Simon Mort (2017). Professional Report Writing. ISBN 9781138272651. Routledge</p>	02
	Total	60

Approved

Text Books

1. C R Kothari, *Research Methodology: Methods and Techniques*, 4th Ed. New Age International (P) Limited Publishers. 2019.
2. Ranjit Kumar, *Research Methodology a step-by-step guide for beginners*, Pearson Publications, 2021.



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Reference Books

1. Smart Melville and Wayne Goddard, *Research Methodology: An introduction or Science and Engineering Students*, Juta & Co. Ltd., 2019.

Any other information :

Total Marks of Internal Continuous Assessment (ICA) 50 Marks

Distribution of ICA Marks :

Description of ICA	Marks
Test I	10
Assignment	10
Term Work	30
Total Marks :	50



Signature
(Prepared by)
Dr. Yogesh Kulkarni
Associate Dean



Signature
(Approved by)
Dr. Jagannath Sahoo
Dean



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Program: Ph. D. Course work (Pharm. Sciences)				Semester : I	
Course: Research and Publication Ethics				Module Code:	
Teaching Scheme				Evaluation Scheme	
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks- 50 in Question Paper)
2	0	0	2	Marks Scaled to 50	Marks Scaled to 50
Pre-requisite: Preliminary knowledge of research, types of research, research process.					
Objectives: To provide knowledge of ethical aspects related to research and publications.					
Outcomes After completion of the course, the student will be able to -					
<ol style="list-style-type: none"> 1. Demonstrate globally accepted ethics for research 2. Identify peer reviewed journals indexed by reputed indexing agencies 3. Distinguish predatory and authentic publications 					
Detailed Syllabus:					
Unit	Description				Duration in Hours
	THEORY				
1	Philosophy & Ethics <ol style="list-style-type: none"> 1. Introduction to philosophy: Definition, nature and scope, concept, branches 2. Ethics: Definition, moral philosophy, nature of moral judgements and reactions 3. Basic Reading 4. Antonio S., Ana F. & Elena U. (2018). Ethics in research practice and innovation. IGI global. 5. Haidt, J., & Bjorklund, F. (2008). Social intuitionists answer six questions about moral psychology. In Walter Sinnott Armstrong (Ed.), Moral psychology: Intuition and Diversity vol. 2. Cambridge: MIT Press 6. https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm 				3
2	Scientific conduct <ol style="list-style-type: none"> 1. Ethics with respect to science and research 2. Intellectual honesty and research integrity 3. Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP) 4. Types plagiarism, steps to avoid plagiarism 5. Redundant publications: Duplicate and overlapping publications, salami slicing 6. Selective reporting and misrepresentation of data 7. Case studies Basic Reading <ol style="list-style-type: none"> 1. Antonio S., Ana F. & Elena U. (2018). Ethics in research practice and innovation. IGI global. 				5




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	<p>2. Haidt, J., & Bjorklund, F. (2008). Social intuitionists answer six questions about moral psychology. In Walter Sinnott Armstrong (Ed.), Moral psychology: Intuition and Diversity vol. 2. Cambridge: MIT Press</p> <p>Advanced Reading</p> <p>1. Rachel B., Kitty R., Meg M. (2014). Ethics and education research. British educational research association.</p> <p>2. https://ori.hhs.gov/handling-misconduct</p>	
<p align="center">3</p>	<p>Publication Ethics</p> <ul style="list-style-type: none"> • Publication ethics: Definition, introduction and importance • Best practices/standards setting initiatives and guidelines: COPE, WAME etc. • Conflict 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 • Case studies <p>Basic Reading</p> <ul style="list-style-type: none"> • https://publicationethics.org/guidance/Guidelines • https://www.wame.org/policies • https://ori.hhs.gov/handling-misconduct <p>Advanced Reading</p> <ul style="list-style-type: none"> • Research and publication ethics (2018) : a complete guide to conducting and publishing research (2018). Enago Academy. • https://www.enago.co.kr/academy/wp-content/uploads/2018/05/Research_Ethics.pub_V2.pdf • https://publicationethics.org/guidance/Case • Raad R, Appelbaum P.S.(2012). Relationships between medicine and industry: approaches to the problem of conflicts of interest. Annu Rev Med.; 63:465-77. doi: 10.1146/annurev-med-061410-121850. 	<p align="center">7</p>
	<p>PRACTICE</p>	
<p align="center">4</p>	<p>OPEN ACCESS PUBLISHING</p> <ul style="list-style-type: none"> • 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 finder/journal suggestion tools viz. JANE, Elsevier journal finder, Springer journal suggester, etc. <p>Basic Reading</p> <ul style="list-style-type: none"> • https://en.unesco.org/open-access/what-open-access • https://ugccare.unipune.ac.in/apps1/home/index • https://beckerguides.wustl.edu/selectingjournal 	<p align="center">4</p>



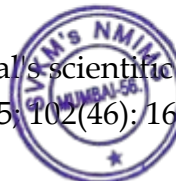

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	<ul style="list-style-type: none"> • Beall J. Predatory publishers are corrupting open access. Nature September 12, 2012. 2012; 489(7415):179. doi: 10.1038/489179a <p>Advanced Reading</p> <ul style="list-style-type: none"> • Rodolphe Sepulchre (2021). The future of publishing https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=9539138 	
5	<p>PUBLICATION MISCONDUCT</p> <ol style="list-style-type: none"> 1. Subject specific ethical issues, FFP, authorship 2. Conflict of interest 3. Complaints and appeals: examples and fraud from India and abroad <p>Software tools Use of plagiarism software like Turnitin, Urkund and other open sources software tools</p> <p>Basic Reading</p> <ul style="list-style-type: none"> • https://www.icmje.org/recommendations/browse/about-the-recommendations/ • https://www.turnitin.com/ 	2 2
6	<p>DATABASES AND RESEARCH METRICS</p> <p>Databases</p> <ol style="list-style-type: none"> 1. Indexing databases 2. Citation databases: web of sciences, Scopus etc. <p>Research Metrics</p> <ol style="list-style-type: none"> 1. Impact factor of journal as per journal citation report, SNIP, SJR, IPP, Cite Score 2. Metrics: h-index, g index, i10 index, Almetrics <p>Basic Reading</p> <ul style="list-style-type: none"> • Introduction to Impact Factor and Other Research Metrics (2022).Illinois library. https://guides.library.illinois.edu/c.php?g=621441&p=4328607 • https://www.elsevier.com/connect/editors-update/citescore-a-new-metric-to-help-you-choose-the-right-journal • https://www.scimagojr.com/ • https://beckerguides.wustl.edu/authors/hindex <p>Advanced Reading</p> <ul style="list-style-type: none"> • Hirsch JE. An index to quantify an individual's scientific research output. Proc Natl Acad Sci U S A. 2005 November 15; 102(46):16569-16572. doi: 10.1073/pnas.0507655102 • Understanding research metrics (2022). Editor resources, Taylor and Francis. https://editorresources.taylorandfrancis.com/wp-content/uploads/2018/11/Understanding-research-metrics.pdf 	4 3

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Total	30 Hours
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Reference Books:

1. On Being a Scientist: A Guide to Responsible Conduct in Research: Third Edition. The National Academies Press, USA. 2009.
2. Standing in the Shadow of Giants: Plagiarists, Authors, Collaborators by Rebecca Moore Howard. Volume 2 in the series 'Perspectives on Writing: Theory, Research, Practice. Ablex Publishing Corporation, Stamford, Connecticut, USA. 1999.
3. Combating Student Plagiarism: An Academic Librarian's Guide. By Lampert Lynn. Oxford: Chandos Publishing Limited. 2008.

Any other information :

Total Marks of Internal Continuous Assessment (ICA) 50 Marks

Distribution of ICA Marks :

Description of ICA	Marks
Test I	10
Assignment	10
Term Work	30
Total Marks :	50



Signature
(Prepared by)
Dr. Yogesh Kulkarni
Associate Dean



Signature
(Approved by)
Dr. Jagannath Sahoo
Dean




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