

INSTITUTE	FACULTY OF PHYSIOTHERAPY
PROGRAM	MASTER OF PHYSIOTHERAPY
SEMESTER	1
COURSE TITLE	RESEARCH METHODOLOGY AND BIOSTATISTICS, EBP
COURSE CODE	MPT-102
COURSE CREDITS	5

Objective:

- 1 Formulate an appropriate review question.
- 2 Develop literature search strategy relevant to the review question.
- 3 Critically appraise literature in the context of its contribution to understanding the research problem being studied.
- 4 Demonstrate how to construct and write a literature review.

Course Outcomes: After completion of this course, student will be able to:

- 1 Formulate an appropriate review question.
- 2 Develop literature search strategy relevant to the review question.
- 3 Critically appraise literature in the context of its contribution to understanding the research problem being studied.
- 4 Demonstrate how to construct and write a literature review.

Pre-requisite of course: Students should have foundational knowledge of physiotherapy concepts and basic analytical skills, along with the ability to understand scientific literature at an introductory level.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
90	0	0	100	0	0	0	0

Contents : Unit	Topics	Contact Hours
1	RESEARCH METHODOLOGY Introduction to research , Types of research , Defining a research question, Qualitative study designs , Quantitative study , Type I and type II bias, Study design: types , Case study, Case series, longitudinal cohort, Pre post design, Time series design, repeated measures design, Randomized control design. , Sampling design, calculating minimum sample size based on design , Measurement: Properties of measurement: reliability, validity, responsiveness, MCID. , Outcome measures: Use of outcome measures in rehabilitation research, Research Methods: Designing methodology, Reporting results, Type I and Type II bias., Communicating research., Evaluating published research: looking at the evidence , Introduction to evidence-based practice, evaluating evidence., Asking clinical questions, Translating of evidence into practice: strategies , Use of clinical practice guidelines, clinical pathways, prediction rules to inform practice.	30
2	BIOSTATISTICS Descriptive Statistics and measurement variability , Inferential Statistics, Comparison of group means: T-test, Analysis of variance , Multiple comparison tests , Parametric and Non parametric tests , Correlations, Regression , Analysis of frequencies: Chi square, Statistical measure of validity and reliability , Factorial Design analysis, Power analysis – Determining sample size, Epidemiological Measures – Rate, Ratio, Proportion, Incidence and prevalence, Relative risk, Risk ratio, Odds ratio, Application of various statistical software.	30
3	SCIENTIFIC WRITING Definition and kinds of scientific documents – Research paper, Review paper, Book, Reviews, Thesis, Conference and project reports (for the scientific community and for funding agencies). , Publication – Role of author, Guide, Co-authors., Structure, Style and contents; Style manuals (APA, MLA); Citation styles: Footnotes, References; Evaluation of research , Significance of Report writing; Different steps in Report writing; Mechanics and precautions of writing research reports Oral and poster presentation of research papers in conferences/symposia; Preparation of abstracts. , Structure of Thesis and Content – Preparing Abstracts.	30
Total Hours		90

Textbook :

- 1 Statistical Methods in Biology, N.T.J. Bailey, Hodder Arnold (formerly English Universities Press), 1981
- 2 Statistics in Medicine, Theodore Colton, Little, Brown Company, Boston, 1974
- 3 Statistical Methods, S.P. Gupta, Sultan Chand & Sons, New Delhi, 2005
- 4 Methods of Statistical Analysis, C.H. Goulden, Wiley (Asia Publishing House reprint), 1939

Textbook :

- 5 Statistical Methods, G.W. Snedecor & W.G. Cochran, Iowa State University Press, 1989
- 6 Elementary Statistics for Medical Workers, Inderbir Singh, Jaypee Brothers Medical Publishers, 1990
- 7 Methods in Biostatistics, B.K. Mahajan, Jaypee Brothers Medical Publishers, 1970
- 8 Methods of Social Survey and Research, S.R. Bajpai, Kitab Ghar, Kanpur, 1966
- 9 Research Methods in Behavioral Sciences, S.M. Mohsin, Orient Longman, Calcutta, 1984
- 10 First Course in Methodology of Research, Meenakshi, Kalia Prakashan, Patiala, 0
- 11 Research Methodology: A Step-by-Step Guide, Ranjit Kumar, Pearson Education Australia / SAGE, 2019
- 12 Research for Physiotherapists: Project Design and Analysis, Carolyn M. Hicks, Churchill Livingstone, 1995
- 13 Rehabilitation Research: Principles and Applications, Elizabeth Domholdt, Elsevier Health Sciences, 2004

Suggested Theory Distribution:

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
0.00	0.00	35.00	35.00	30.00	0.00

Instructional Method:

- 1 Interactive Lectures with Demonstrations
- 2 Problem-Based Learning (PBL) & Case Analysis
- 3 Hands-On Workshops & Statistical Software Training
- 4 Seminar Presentations & Peer Review