KLE JAGADGURU GANGADHAR MAHASWAMIGALU
MOORUSAVIRMATH MEDICAL COLLEGE AND HOSPITAL
Gabbur Cross, Hubballi 580028
A Constituent Unit of KLE Academy of Higher Education and Research, deemed -to be university Belagavi, Karnataka

Department of Community Medicine

Research Primer

Essentials of protocol development and Analysis

For Phase II, Phase III/I, Phase III/II MBBS and BPT students

Preamble

In today's evidence-driven healthcare environment, the ability to critically assess and apply research is a fundamental skill for medical professionals. The Basics of Research Methodology and Biostatistics course is designed to provide MBBS students with the foundational knowledge and skills necessary to conduct, analyze, and interpret medical research. This course lays the groundwork for students to engage with scientific literature, enabling them to make informed decisions in clinical practice based on the best available evidence.

Research methodology is the cornerstone of medical research, guiding the design, implementation, and evaluation of studies that advance our understanding of diseases, treatments, and healthcare practices. By mastering the principles of study design, hypothesis formulation, data collection, and analysis, students will learn to construct meaningful research questions and apply appropriate methodologies to answer them. Ethical considerations in research, including patient consent and the responsible conduct of studies, will also be emphasized to ensure the integrity of research practices.

Biostatistics, an essential course component, empowers students to interpret quantitative data and understand the statistical tools used in medical studies. From calculating measures of central tendency to performing hypothesis testing, students will gain the analytical skills required to evaluate the reliability and significance of research findings. By learning how to apply statistical tests such as t-tests, chi-square, and regression analysis, students will be equipped to assess the validity of research and its implications for clinical practice.

Ultimately, this course will prepare students to engage with research critically, contribute to medical knowledge, and conduct research independently.

Objectives: By the end of the course, the student should be able to

1. Demonstrate a thorough understanding and application of key research designs in medical research, including descriptive, analytical, and experimental studies.
2. Analyse data using appropriate statistical tools and interpret the results to clinical and statistical significance.

Develop the skills to critically evaluate research studies and effectively communicate findings through scientific writing and presentations.

Course duration: 28hours

Course timing: April to June 2025

Resource faculty

Dr Saurabh Kumar Professor and Head	**Dr Rizwana B Shaikh** Associate Professor
Dr Abhinandan Wali Associate Professor	**Dr Aniket D Manoli** Associate Professor
Dr Kashavva B Andanigoudar Assistant Professor	**Dr Namratha Kulkarni** Assistant Professor
Dr Gowthamkarthic Assistant Professor	**Dr Annadaneshwari B** Assistant Professor
Dr Prathiba E G Assistant Professor	**Dr Sasitharan M** Senior Resident
Miss Shruti Hiremath Statistician	

Course content

Sl No		Name of the topic	Teaching hours
1	Week 1	Introduction to the course and research question	1 hour
2		Research hypothesis and objectives	1 hour
3	Week 2	Review of literature and referencing	2 hours
4	Week 3	Sampling and tools for data collection	2 hours
5	Week 4	Research designs	1 hour
6		Research designs	1 hour
7	Week 5	Research Designs	1 hour
8		Research Designs	1 hour
9	Week 6	Introduction Biostatistics and variables	2 hours
10	Week 8	Descriptive statistics	2 hours
11	Week 9	Normal distribution curve and hypothesis testing	2 hours
12	Week 10	Inferential statistics	2 hours
13	Week 11	Introduction SPSS	2 hours
14	Week 12	Data analysis	2 hours
15	Week 13	Ethical considerations in research	2 hours
16	Week 14	Protocol submission and assessment	2 hours

Target group: Phase II, Phase III/I, Phase III/II MBBS and BPT students

Assessment method: MCQ test (40marks), Protocol submission (40marks) and assignment (20marks)

Course fees: 1000 INR

Feedback: Submission of the feedback form after each week and at the end of the course.

Criteria for certification: 80% attendance in the sessions and 50% in the final assessment.

List of references:

1. Hulley SB, Cummings SR, Browner WS, Grady D, Newman TB. Designing Clinical Research. 4th ed. Philadelphia: Lippincott Williams & Wilkins; 2013.
2. Gordis L. Epidemiology. 5th ed. Philadelphia: Elsevier Saunders; 2014.
3. Saha I, Paul B. Essentials of Biostatistics & Research Methodology. 3rd ed. New Delhi: Academic Publishers; 2021.