RMM001 - RESEARCH METHODOLOGY (Medical & Health Sciences)

Unit-I: Research Preparation and Planning  

Unit-II: Research Resources  

Unit-III: Academic Writing & Presentation  
Proposal submission for funding agencies, Elements of Style. Organization of proposals, Basic knowledge of funding agencies, Research report writing, Communication skills, Tailoring the presentation to the target audience – Oral presentations, Poster preparations, Submission of research articles for Publication Reputed to journal, Thesis writing, and Research report writing. Elements of excellent presentation: Preparation, Visual and Delivery. Oral Communication skills and Oral defence.

Unit-IV: Data Collection, Analysis and Inference  
Basic Statistical Distributions and their applications: Binomial, Poisson, Normal, Exponential, Weibull and Geometric Distributions. Sample size determination & sampling techniques: Random sampling, stratified sampling, systematic sampling and cluster sampling. Large Sample Tests and Small Sample Tests: Student-t-test, F-test and \( \chi^2 \) test and their applications in research studies. Correlation and Regression Analysis-Time series analysis: Forecasting methods. Factor analysis, Cluster Analysis and Discriminant Analysis (Basic ideas only). Principles of Experimentation, Basic Experimental Designs: Completely Randomized Design Randomized Block Design and Latin Square Design. Factorial Designs: \( 2^2 \), \( 2^3 \) and \( 2^4 \).

Unit-V:  
Evidence based medicine - Basis Concepts of translational and applied research - procedures of Clinical trials - knowledge of funding and regulatory institutions. Helsinki declaration - Familiarity with the ICMR ethical guidelines for biomedical research - Institutional Ethics Committee – functions and powers - informed consent, - Familiarity with the Guidelines for care and use of animals in Scientific research - animal substitution.
Indices of health and nutrition in a community anthropometry - epidemiological research - sample size calculation as applied to medical research - study of environmental impact on the health status.

References

7. Indian National Science Academy, Guidelines for care and use of animals in scientific research New Delhi, 2000.