

Faculty of Indian Medical System

Department of Samhitha Siddhanta

Research methodology and Medical statistics

Unit No	Topic	Domain	Time (Hours)
1.	Brief historical background of research in Ayurved and contemporary medical science Evidences of researches in ayurvedic classics	Nice to know	3
2.	Etymology, definitions and synonyms (Anveshana, Gaveshana, Prayeshana, Anusandhan and Shodha) of the word Research	Must know	2
3.	Research in Ayurved - Scope, need, importance, utility	Nice to know	2
4.	Types of Research (familiarization of the terms) a) Pure and Applied b) Qualitative , Quantitative and Mixed Observational and interventional	Must know	4
5.	Research process (Importance of each steps in brief) a. Selection of the topic b. Review of the literature c. Formulation of Hypothesis d. Aims and Objectives e. Materials and methods f. Observations and results g. Methods of communication of Research	Must know	5
6.	Research tools – Role of the pramanas as research tools	Must know	2
7.	The concept and importance of ethics in research	Must know	2
8.	Concept of Evidence Based Medicine and Scientific Writing	Must know	2
9.	Importance of IT in data mining and important research data portals concerned with Ayurved and contemporary medical science (DHARA , PubMed, Ayush Research Portal, Bioinformatics Center, Research Management Informatic System etc.)	Nice to know	3
10.	Definition, scope and importance of the Medical statistics	Must know	2
11.	Common statistical terms and notations	Must know	2
12.	a. Population b. Sample c. Data d. Variable e. Normal distribution	Must know	3
13.	Collection and Presentation of data a. Tabular	Must know	3

	b. Graphical c. Diagrammatical		
14.	Measures of location a. Average b. Percentile Measures of Central Tendency a. Arithmetic mean b. Median c. Mode	Must know	5
15.	Variability and its measurement a. Range b. Standard deviation c. Standard error	Must know	3
16.	Introduction to probability and test of significance	Must know	2
17.	Parametric and non parametric tests	Nice to know	3
18.	Introduction to commonly used statistical soft- wares	Nice to know	2
	Total Teaching Hours		25

CURRICULUM PLANNING

Unit No	Topic	Learning objectives (At the end of the session the student should be able to)	Teaching Guidelines	Methodology	Time (Hours)
1.	Brief historical background of research in Ayurved. and contemporary medical science Evidences of researches in ayurvedic classics	Historical background of research in Ayurved with evidence	Brief historical background of research in Ayurved and contemporary medical science Evidences of researches in ayurvedic classics	Didactic Power Point Presentation SIS	3
2.	Etymology, definitions and synonyms (Anveshana, Gaveshana, Prayeshana, Anusandhan and Shodha) of the word Research	Derivation, definitions and synonyms of the word Research	Etymology, definitions and synonymsof Research & Anveshana, Gaveshana, Prayeshana, Anusandhan and Shodha their definition	Didactic Power Point Presentation	2
3.	Research in Ayurved - Scope, need,	Scope, importance, need and utility of	Research in ayurveda, its	Didactic Power Point	2

	importance, utility	research in Ayurveda	evidence, proof, need, importance , need for research in ayurveda	Presentation Group discussion Students Seminar	
4.	Types of Research	Types of research	Types of research - familiarization of the terms a) Pure and Applied b) Qualitative , Quantitative and Mixed Observational and interventional	Didactic Power Point Presentation SIS Poster Presentation	4
5.	Research process (Importance of each steps in brief)	Research process definition, Steps involved in the process of research	Research process definition, Steps involved in the process of research a. Selection of the topic b. Review of the literature c. Formulation of Hypothesis d. Aims and Objectives e. Materials and methods f. Observations and results g. Methods of communication of Research	Didactic Power Point Presentation SIS	5
6.	Research tools	Materials and methods used and the tools used	Materials and methods used and the tools used, Role of the pramanas as research tools	Didactic Power Point Presentation Students Seminar SIS	2
7.	The concept and importance of ethics in research	Ethics, IEC, its constitution	Ethics, IEC, its constitution, No;of Meetings,materials and documents to be submitted to IEC, importance of ethics in research	Didactic Power Point Presentation	2
8.	Concept of Evidence Based Medicine and Scientific Writing	Scientific writing – definition, scope and importance	Importance of documentation and evidence based medicine, methods of documentation,	Didactic Power Point Presentation SIS	2

			scientific writing, tools used and methods		
9.	Importance of IT in data mining and important research data portals	Importance of IT in data maintenance and sharing,important data portals like dhara,AYUSH	Importance of IT in data maintenance, methods of data entry and maintenance, Data Mining and important research data portals like DHARA , PubMed, Ayush Research Portal, Bioinformatics Center, Research Management Informatic System	Didactic Power Point Presentation Students Seminar	3
10.	Definition, scope and importance of the Medical statistics	Definition of medical statistics	Definition, scope and importance of the Medical statistics, its evidence in ayurveda, Pramana as a tool	Didactic SIS Power Point Presentation	2
11.	Common statistical terms and notations	Definition of common statistical terms	Definition of common statistical terms	Didactic Power Point Presentation	2
12.	a. Population b. Sample c. Data d. Variable e. Normal distribution	a.Population b. Sample c. Data d. Variable e. Normal distribution	a.Population : Selection, inclusion criteria, exclusion criteria. b. Sample: size, nature and area c. Data : what sort of data and duration of study, interval of collection of data d. Variable : e. Normal distribution	Didactic Power Point Presentation Group Discussion	3
13.	Collection and Presentation of data	Methods of collection and presentation of data with definition	Collection and Presentation of data. Where and when to use each type with example a. Tabular b. Graphical c. Diagrammatical	Didactic Power Point Presentation SIS Group Discussion	3
14.	Measures of location	Measures of location	Definition of	Didactic	5

	Measures of Central Tendency	Measures of Central Tendency with examples	Measures of location a. Average b. Percentile Measures of Central Tendency a. Arithmetic mean b. Median c. Mode with problems and example	Power Point Presentation Case presentation	
15.	Variability and its measurement	Definition of Variability and its measurement	Variability and its measurement with definition a. Range b. Standard deviation c. Standard error	Didactic Power Point Presentation	3
16.	Introduction to probability and test of significance	Probability and various tests for significance	Definition of Probability and significance. Various tests for significance like chi square test, t test & student T Test	Didactic Power Point Presentation Poster Presentation	2
17.	Parametric and non parametric tests	Name and meaning of parametric and non parametric tests	Name and meaning of parametric and non parametric tests with examples	Didactic Power Point Presentation	3
18.	Introduction to commonly used statistical soft-wares	Names of Software and their utility in Stat	Names of Software and their utility in Stat, basic introduction to the usage of Statistical softwares	Didactic Power Point Presentation	2
	Total Teaching Hours				25

Reference books for Research methodology :

1. Dawson, Catherine, 2002, Practical Research Methods, New Delhi, UBS Publishers' Distributors
2. Kothari, C.R., 1985, Research Methodology-Methods and Techniques, New Delhi, Wiley Eastern Limited.
3. Kumar, Ranjit, 2005, Research Methodology-A Step-by-Step Guide for Beginners, (2nd.ed), Singapore, Pearson Education

4. Students guide to research methodology – Undergraduates.
Alexandria Medical Students Association.
5. Health research methodology. A guide for training in research methods. 2nd edition. Manila, World Health Organization Regional Office for the Western Pacific, 2001.

Reference Books for statistics :

1. Health research methodology. A guide for training in research methods. 2nd edition. Manila, World Health Organization Regional Office for the Western Pacific, 2001.
2. Statistical methods in medical research. P.Armitage (Ed) Oxford Blackwell
3. Statistical methods . Snedecor GW and Cochran, WG
4. Altman, D. G. (1991). Practical statistics for medical research. London: Chapman
- Principles of Medical Statistics by A. Bradford Hill
5. Interpretation and Uses of Medical Statistics by Leslie E Daly, Geoffrey J Bourke, James MC Gilvray.
6. Research in Ayurveda-M S Baghel
7. research methodology in ayurveda-V.J.Thakar,Gujarat Ayurved University
8. Ayurveda anusandhan paddhati-P.V.Sharma
- 9.Research methodology methods and statistical techniques- Santosh Gupta. Greenhouse SW.
- 10.The growth and future of biostatistics: (A view from the 1980s). Statistics in Medicine 2003; 22:3323–3335.
- 11.Knapp GR & Miller MC. Clinical epidemiology and Biostatistics, NMS series Antonisamy B, Christopher S & Samuel PP. Biostatistics : Principles and practice
- 12.Sundara Rao PSS & Richard J. An introduction to Biostatistics, PHI

13.Senn S (1997). Statistical Issues in Drug Development. Chichester:
John Wiley & Sons.

14.Methods in Bio-statistics for Medical Students- BK Mahajan

15.Vaidyakeeya Sankhiki Shastra- Dr.S.S.Savrika

Note:

Total Marks 50 (Part A-30 and Part B- 20)

Total teaching hours: 50

PART – A –Research Methodology Sl.No – 1-9

PART – B - Medical-Statistics – Sl.NO- 10- 18