

SYLLABUS

**for Courses affiliated to the
Kerala University of Health Sciences**

Thrissur 680596



Master of Public Health

(MPH)

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course:

Master of Public Health (MPH)

2.2 Objectives of course

National goal

- Empowering persons from multiple disciplines with a public health vision for effective public health in India is the overall goal of this program.

Institutional goals

- Master of Public Health course by Kerala University of Health Sciences will open a new opportunity for people interested to understand, study and practice public health and its various sub-specialties in India. The proposed M.P.H. program will help a long way in building the public health capacity of health human resources in our country. The university aims to run a world-class M.P.H. program which can meet the requirements of not only India, but also other developing countries of the world- in terms of adequately trained public health practitioners

Upon completion of the M.P.H., a trainee will have developed the following six technical core competencies:

- I. Comprehend the biological, social, behavioral, environmental determinants affecting health
- II. Conceptualize the elements of health systems to effectively design, develop, implement manage and evaluate the public health interventions, health systems structures and functions
- III. Understand the scope and concepts and master the methods in epidemiology and health administration
- IV. Plan, implement and evaluate public health surveillance systems, investigation of outbreaks, and epidemic preparedness.
- V. Conduct public health research in accordance with scientific principles and research ethics

- VI. Effectively communicate public health information to lay and professional audiences

2.3 Medium of instruction:

The medium of instruction and examinations shall be English

2.4 Course outline

Public health is "*the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals.*"

Public health is essentially a multi-disciplinary science. Medical professionals and non-medical people specialized in other areas like engineering; social sciences; economics, anthropology etc. should also be involved in public health. Inter-sector coordination is identified as a big gap in proper planning and implementation of public health programs in India. Presence of public health trained people at various levels will help to bridge the existing gap. Training in public health will equip public health administrators and managers to practice public health in a scientific way.

General Consideration and Teaching approach

There is a need for more comprehensive Master's program in public health suitable for the needs of the public health system in India, keeping in mind the double burden of diseases the country is currently going through, with extreme shortage of human resources available with adequate public health training. The same is true for many other countries of the world

The Master of Public Health (M.P.H.) degree program proposed by Kerala University of Health Sciences is a high-intensive, demanding, interdisciplinary program emphasizing student-directed competency-based, learning, problem solving, and the acquisition of fundamental public health skills with value addition. It is envisaged as a comprehensive M.P.H. program based on the principles and practices in public health with suitable and relevant modules catering to the needs of the public health system in India

Successful graduates are likely to have the following career and professional opportunities

- Pursuing specialization in areas like health service management, health economics and financing, Epidemiology, Biostatistics etc through fellowships or doctorate programs
- In-service and fresh graduates may be recruited or posted as Surveillance officers, epidemiologists, District program managers under NRHM and various national programs
- Positions in the administrative and public health cadres as proposed in all states as part of the Universal Health Coverage under the 12th Five-year plan by Government of India
- In addition, there are teaching and research positions in Public health institutes, State and National Health Systems Resource Centres, other research institutes and medical colleges

2.5 Duration

The duration of M.P.H. Programme is 2 years. However, a student who is unable to complete the program successfully in two years, shall have to complete it in not more than 4 years in order to get a degree from University.

2.6 Syllabus

Year	Subjects covered
I	<ol style="list-style-type: none"> 1. Introduction to Basic medical sciences 2. Introduction to Epidemiology 3. Basic Biostatistics 4. Health and Development 5. Health and Environment 6. Health Systems 7. Quantitative Research Methods 8. Qualitative Research Methods 9. Ethics in Public Health and research 10. Health Management including communication 11. Gender Issues in Health 12. Anthropological Perspectives in Health
II	<ol style="list-style-type: none"> 1. Intermediate Epidemiology 2. Infectious Disease Epidemiology 3. Chronic Disease Epidemiology 4. Health Policy Analysis 5. Health Economics and health care financing 6. Intermediate Biostatistics and Health Informatics

2.7 Total number of hours

Courses covered	Total Hours
Introduction to Basic medical sciences	30
Introduction to Epidemiology	60
Basic Biostatistics	60
Ethics in Public Health and research	30

Health and Development	30
Quantitative Research Methods	45
Qualitative Research Methods	45
Health Management and communication	90
Gender Issues in Health	30
Anthropological Perspectives in Health	15
Infectious Disease Epidemiology	60
Health and Environment	45
Health Policy	60
Health Systems	60
Health Economics and health care financing	60
Intermediate Biostatistics and Health Informatics	60
Intermediate Epidemiology	60
Chronic Disease Epidemiology	60
Dissertation	300
	1200

2.8 Branches if any with definition

As detailed in clause 2.10

2.9 Teaching learning methods

The MPH program shall employ the following mixed methods for individual subjects- Lecture classes, Field trainings, assignments, Seminars and presentations, Workshops, Projects. In addition, a dissertation assesses the comprehensive understanding and skill-sets of students. Modular teaching will be followed.

2.10 Content of each subject in each year

1.Introduction to basic medical sciences

1. This module is aimed at sensitizing and orienting public health students to basic understanding of medical sciences.
2. The module will cover basic anatomy, physiology, biochemistry, pathology and microbiology

2. Health Systems

1. The principles and pattern of various healthcare systems in the world with emphasis to the evolution of various health system models
2. Healthcare scenario in India; Evolution of Indian healthcare system and the major Committee Reports, various organized (public and private) healthcare infrastructures in India;
3. Alma Ata and Primary Health Care; Organization of healthcare units at national, state, district and village level;
4. Major national health programs like National Health Mission (NHM), Revised National Tuberculosis Program (RNTCP), National AIDS Control Organization (NACO), National Mental Health Program (NMHP) etc;
5. Principles and practice of health systems research.

3. Health and Development

1. Social determinants of health and inter linkages between health and development at local, national and global levels and be able to apply that in health program planning.
2. Introduce the concepts and indicators of development, globalization and poverty and be able to apply Health Impact Assessment (HIA) as a methodology to assess the impact of development policies on health'
3. To familiarize the concepts of health equity and various sources of inequalities in health and the policy and program approaches to promote health equity and make health services accessible to the poor

4. Health and Environment

1. Environmental determinants of human and ecosystem health
2. Basic concepts of environmental health sciences and key environmental health issues with a global perspective
Develop approaches for assessment, prevention and control of environmental and occupational health issues

5. Introduction to Epidemiology

1. The fundamentals: The subject and methods of Epidemiology
2. Epidemiological approaches: measurement, comparison, and inference, as well as the different roles of epidemiology in description of a situation, looking for trends over time, exploring associations, predicting outcomes, investigating epidemics, and establishing causal links in disease occurrence;
3. Epidemiological study design, and basic concepts such as reliability, validity, bias, and confounding; and
4. Basic software for epidemiological data analysis such as EPI-INFO and EPI-DATA

6. Basic Biostatistics

1. The fundamentals: The concepts of statistics, principles of statistical data analysis and interpretation of findings.
2. Review of essential mathematics, demographic rates and ratios, methods to summarize data-Tabulation, graphical presentation of data.
3. Measures of central location-Symmetry and Skewness of distributions-Measures of spread-Transforming variables
4. Introduction to probability-Probability distributions
5. Introduction to statistical inference-Introduction to simple random sampling-Sampling distributions-Standard error-Standard normal distribution
6. Confidence intervals-Hypothesis testing- One-sample tests-Two sample tests for means and proportions-

7. Quantitative Research Methods

1. Literature review including various style of referencing, method of reviewing literature and how this has to be reproduced in the dissertation or a research paper with appropriate citation
2. Choosing a research topic in general and specifically for the MPH dissertation, framing research questions and objectives of the study
3. Identification of variables, defining each variable and operationalizing them
4. Various study designs including cross sectional, case control and cohort
5. Different methods of data collection; questionnaire method, interview schedules, and some physical measurements like weight, height, waist circumference
6. Organizational aspects of field survey, logistics of field survey organization, training of staff transportation etc
7. Sample size estimation, sample selection procedures, sample frame
8. Development of a questionnaire and interview schedule and the difference between the two
9. Pilot testing of instrument, time taken for one schedule or one set of questionnaire administration, language barrier, sensitivity of questions, feasibility of getting response etc
10. Importance of translation and back translation of the instrument
11. Scales of measurement, reliability and validity and the difference between the two
12. Organization of data sheets, manual checking of data sheets, grouping them, storage and transportation.
13. Data entry using excel and SPSS, data cleaning.
14. Univariate, bivariate, and multivariate analysis
15. Quantitative Research Methods in Health Economics and Policy Research
16. Writing a research report with executive summary and a research article for scientific journal with an abstract.

8. Qualitative Research Methods

1. Introduction: Introduction to the relevance of qualitative methods in public health research, the anthropologist's worldview, and the various methods available,

2. Applications: Ethnographic interviews, observations (participant and non-participant), group interviews and discussions, other methods less used such as case studies, pile sorts, ethno-physiological representations, etc.
3. Analysis: Translation and transcription, coding, thematic linking and introduction to computer based qualitative data analysis. Ethical issues in qualitative research in public health – issues relating to appropriateness of method, its use, analysis and reporting

9. Health Management and communication

1. Introduction to Management and Communication: Basics of program and project management
2. Human Resource Management: Performance appraisal, Staffing, Metrics, Time management, Negotiation, Management in Human Resources
3. Organization and Management: Organization Assessment, Management of Organization Change, Managerial Problem analysis and decision-making, Decision analysis, Conflict Management, Stress management
4. Financial Management : Financial Management Foundations, Management Accounting in Healthcare, Budget analysis, Balance Sheet, Financial analysis, Analysis of audited financial statements, Cash flow, Financial procedure.
5. Quality of Care and accreditation
6. Project Management principles
7. MIS in Healthcare, Computers in Health Administration, Database principles and design for health application, Health Informatics and Management, Decision Support System and Field Training.

10. Ethics in Public Health and research

1. Concepts and principles of bioethics: Principles, Informed consent, privacy and confidentiality
2. Ethics in Research: Ethics of clinical trials and intervention, Conflict of interest and integrity in research

3. Ethical review processes: Ethical review committees-roles and responsibilities, managing conflict of interest in review processes, Evaluation of risk and benefit in research.
4. Ethical issues in resource allocation: setting priorities and the ethics of selecting criteria for setting priorities – efficiency vs equity, benchmarks of fairness, other criteria used for prioritising, etc
5. Ethical issues in programme management: issues of governance of public health programmes, surveillance and monitoring and evaluation, ethical issues in the management of chronic and infectious diseases management, particularly with reference to epidemics (quarantine/isolation issues), etc
6. Ethical issues in disaster management: manmade and natural disasters, ethics of triaging, ethics of surveillance in disaster situation, etc
7. Professional ethics for Public health practitioners: Developing empathy, resolving conflicts and building consensus, conflict of interest, issues of integrity, transparency and accountability, communication skills, etc

11. Gender Issues in Health

1. Introduction to Gender including concepts of gender and the tools of gender analysis;
2. Gender in public health research
3. Gender perspectives in specific health conditions, such as reproductive health, communicable diseases, non-communicable diseases etc.
4. Gender analysis of Health Policies and Programmes and Health Systems Functioning

12. Anthropological Perspectives in Health

1. Medical Anthropology for Public Health Research
2. Anthropology of health systems
3. Focused Health Ethnographies: Examination of the use anthropological approaches to the study of selected issues such as non-communicable diseases, communicable diseases, reproductive health, etc

13. Intermediate Epidemiology

1. Epidemiological data, issues of quality; The data collection process- reliability, validity, sampling and other issues, Deductive and inductive reasoning

2. Approaches to epidemiological data analysis- description, exploration, and hypothesis testing, Crude and stratified rates including Mantel Haentzel estimate
3. Model building in epidemiology- linear and logistic regression, Confounding, Mediation, Effect Modification.

14. Intermediate Biostatistics and Health Informatics

1. Statistical Methods: Review of Hypothesis tests and confidence intervals; For Means and Proportions-Chi-square test for contingency tables-Fishers exact test-Chi-square test for trend; F test for variances-One-way ANOVA; Correlation, Simple Linear Regression and Logistic regression
2. Introduction to multivariate analysis- Multiple linear regression-Multiple logistic regression
3. Introduction to Non-parametric tests-One-sample tests-Two sample tests.
4. Introduction to Survival data analysis-Censored data-Kaplan Meir Curves.
5. Ethical issues in data management and statistical analysis.
6. Introduction to Health informatics and HMIS

15. Chronic Disease Epidemiology

1. Health Transition, difference between NCDs and communicable diseases, Major driving forces of NCDs including underlying determinants, make a case for the need for epidemiology of NCDs for policy and program
2. Data analysis based on current NCD data globally and regionally
3. NCD Risk factor surveillance, identify major common risk factors for NCD at global and regional level, relevance of NCD risk factor surveillance, outline the WHO STEPs approach to surveillance of NCD risk factors
4. Quality and measurement issues of NCD data, major sources of NCD data, key measurement issues in collecting analyzing and interpreting data and limitations of population level data
5. Standard operating procedures for physical and biological measurements, understand the importance of clear protocols and guidelines, importance of training and supervision to reduce inter-observer variation, sources of bias and errors in measurements

6. Risk factor modification, provide evidence for the NCD risk factor reduction at population level, global strategies like FCTC and strategy on diet and physical activity, key success stories from developed and developing countries
7. Strategies for prevention, different levels of prevention (primordial, primary, secondary and tertiary) in NCDs, Population approach versus high risk approach
8. Stepwise framework for prevention, cost effective interventions at primary, secondary and tertiary health care levels
9. Estimation of the burden of diseases due to NCDs, impact of presenting NCD data in terms of DALYs and deaths, interpret estimates of deaths and DALYs at country level for advocacy for NCDs, calculate the number of premature deaths that could be prevented
10. Partnerships in NCD prevention and control, identify key partners and stakeholders, different roles of partners, potential for partnerships

16. Infectious Disease Epidemiology

1. Introduction of common terms used in infectious disease epidemiology; epidemiological triad; sources and reservoir of infections; routes of transmission and ecology of infectious agents in the community; immune response of human body to infectious agents; patho-physiology and manifestation of infections in human body;
2. Common laboratory diagnostic modalities used in infectious disease epidemiology;
3. Epidemiology of infectious diseases of public health importance;
4. Steps in the investigation of an outbreak; disease surveillance and bio-terrorism,
5. Public health vaccines and issues with vaccine efficiency.

17. Health Policy

1. Introduction of different types of health systems existing in the world, their merits and demerits
2. Concepts relating to health systems such as coverage, financing, quality of care, regulation, insurance etc
3. Logic and process of public policy-making in health
4. Preliminary analysis of health policy issues and decisions based on this understanding

5. Introduction to some analytical tools such as policy relevant epidemiology, economic analysis, decision analysis, qualitative methods and log-frame analysis used in policy studies
6. Health systems and scope of Health Sector Reforms, Health Sector Reform
7. Health Financing Reforms – Overview, Health Insurance: Current schemes and alternative proposals, Community based health insurance,
8. Changes in priority-setting mechanisms, Decentralization, Decentralization in the health sector,
9. Public Private interactions in Health

18. Health Economics and health care financing

1. Basic conceptual tools and theoretical ideas of economics
2. Demand for health, supply of health & health care, costs, cost-effectiveness
3. Health insurance, markets, market imperfections and failure.

2.11 No: of hours per subject

As mentioned in clause 2.7

2.12 Practical training

An internship for two months is mandatory at the end of year 2. The internship will not form part of the evaluations or in the grading. However, without submission of internship certificate through the institute, the University will not issue degree.

On successful completion of the Course and passing all the examinations, the internship can be started. It will be done in the same Institution. Final degree certificate will be issue only after submission of the completion of the internship by The Institute head.

There will be a mandatory 2-weeks residential posting in the year 1 end. During this 2-week, students will be working closely with a community/health center/NGO in undertaking fieldwork.

2.13 Records

As decided by the HOD/Course coordinator

2.14 Dissertation: As per Dissertation Regulations of KUHS

A research project and dissertation is compulsory for the students of Master of Public Health to provide the students an opportunity to plan and design a study, prepare research tools, collect data in the field, analyse the data and write up the research under the guidance of a faculty as soon as the completion of core courses in the first semester.

1. Technical clearance of the research proposal

The IRB (institutional review board) will ensure the scientific soundness of a proposed research and acts as the first level of filter to safeguard against unscientific studies. The concern of the IRB shall be mainly directed towards scientific soundness and technical feasibility.

2. Ethical clearance of the research proposal

The student research proposals cleared by the IRB must be cleared by the IEC.

3. Letter of approval from academic section

Students must obtain a letter of approval from the Institute, which is a pre-requisite to proceed for fieldwork. A letter of recommendation from the guide concerned with the project title, one page summary of the proposal, and letter of clearance from IEC should be submitted to the academic division for the same.

4. Synopsis Submission to KUHS:

Synopsis Submission to KUHS: Within the 6 months of beginning of the course.

Approval: At nine months from the beginning of the course

5. Data collection and data entry

Analysis of data and discussions with guide will happen concurrently and the thesis writing will start. Thesis is completed at 18 months from the date of commencement of course and submitted to KUHS

6. Evaluation of dissertation

The dissertation will be evaluated by three external examiners from a panel. The synopsis of the dissertation will be submitted to KUHS for approval at the end of 4 months of the course of the commencement of course. It will be approved at the end of 7 months (with fine), completed by 18 months and submitted to KUHS. It will be evaluated by 3 examiners from KUHS panel.

If the dissertation is not approved, it will have to be changed and the process to be repeated. The students cannot appear for the examinations unless the dissertation is approved by KUHS.

Percentage system will be followed for grading as per University norms. However, a letter grading system shall also be applied for conversion of the grades from the percentage system in India for the convenience of the students and prospective employers/ institutions of higher learning, as in table below.

Percentage	Letter Grade
85.0 and above	A+
84.9 to 80.0	A
79.9 to 75.0	A-
74.9 to 70.0	B+
69.9 to 65.0	B
64.9 to 60.0	B-
59.9 to 40.0	C
Less than 40.0	D

Grade D (less than 40% marks) is considered as failure.

7. Re-evaluation of dissertation

In case of failure in dissertation, the comments of the external examiners should be incorporated in consultation with the guide and the dissertation resubmitted within a period of 6 months after the declaration of results.

2.15 Specialty training if any

As decided by the HOD/Course coordinator

2.16 Project work to be done if any

As decided by the HOD/Course coordinator

2.17 Any other requirements [CME, Paper Publishing etc.]

Not applicable

2.18 Prescribed/recommended textbooks for each subject

As shown in appendix

2.19 Reference book

As shown in appendix

2.20 Journals

As decided by the HOD/Course coordinator

2.21 Logbook

Not applicable

3. EXAMINATIONS

3.1 Eligibility to appear for exams

A student should have registered with the University and paid all dues including the course fees and examination fees.

A student shall be allowed to appear final university examinations only if he/she has at least 80% attendance for all the subjects together and at-least 80% combined for all component subjects under each paper he/she is appearing in that particular year.

A student shall be allowed to appear for the final university examinations only if he/she has at least 50% internal assessment marks for all component subjects under each paper he/she is appearing in that particular year.

3.2 Schedule of Regular/Supplementary exams

There will be University exams at the end of 2 years. Supplementary exams will be conducted by six months after the main examinations.

There shall be three main components in University evaluation- written theory exam and Viva for all papers, and Dissertation

3.3 Scheme of examination showing maximum marks and minimum marks

Paper	University Theory		University Viva		Internal Theory		Internal Viva		Total	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Paper 1	100	50	50	25	25	12.5	25	12.5	200	100
Paper II	100	50	50	25	25	12.5	25	12.5	200	100
Paper III	100	50	50	25	25	12.5	25	12.5	200	100
Paper IV	100	50	50	25	25	12.5	25	12.5	200	100
Paper V	100	50	50	25	25	12.5	25	12.5	200	100
Clinical Practicum	-	-	-	-	-	-	-	-	100	50
Dissertation	-	-	-	-	-	-	-	-	100	50
Total									1200	600

3.4 Papers in each year

Year	Paper	Courses covered
I	Paper 1	<p>Section A</p> <p>Introduction to Basic medical sciences</p> <p>Health Systems</p> <p>Section B</p> <p>Health and Development</p> <p>Health and Environment</p>
	Paper 2	<p>Section A</p> <p>Introduction to Epidemiology</p> <p>Basic Biostatistics</p> <p>Section B</p> <p>Quantitative Research Methods</p> <p>Qualitative Research Methods</p>
	Paper 3	<p>Section A</p> <p>Health Management and communication</p> <p>Ethics in Public Health and research</p> <p>Section B</p> <p>Gender Issues in Health</p> <p>Anthropological Perspectives in Health</p>
	Paper 1	<p>Section A</p> <p>Intermediate Epidemiology</p> <p>Intermediate Biostatistics and Health Informatics</p> <p>Section B</p> <p>Chronic Disease Epidemiology</p>

II		Infectious Disease Epidemiology
	Paper 2	<p>Section A</p> <p>Health Policy</p> <p>Section B</p> <p>Health Economics and health care financing</p>

3.5 Details of theory exams

There will be three theory Papers at the end of first year and two theory Papers at the end of year 2. Each paper will have two sections, as detailed in the Clause 3.4

The setting of questions and evaluation of the answer papers containing basic medical sciences will be undertaken by a faculty with MBBS and MPH/MD (core faculty). All other question papers will be set and answer sheets evaluated by faculty of public health (medical or non-medical)

3.6 Model question paper

Model question paper will be duly published in KUHS website

3.7 Internal assessment component

The institutions/teachers can conduct internal assessment for each subject on a continuous basis. They may employ varying (but not limited to) methods like, written exams, assignments, group works, seminars, presentations, field report etc. Internal assessment for theory and viva will be sent separately.

3.8 Details of practical/clinical practical exams

The marks will be distributed between theory (internals and university), viva and thesis as follows

Total marks:**1200**

Theory and viva (each paper 200 marks= University (theory 100+50 viva) + 50 marks internal (25 theory + 25 viva) =1000 (for 5 theory papers)

Clinical Practicum=100

Presentation of dissertation in exam=100

3.9 Number of examiners (Internal & External) and their qualifications

As given in the regulations and stipulated by the KUHS from time to time

3.10 Details of viva:

Viva will be part of evaluation for the second years for all the papers. Viva may include questions related to the project conducted by the student as well as field postings and theory sections. A panel with one internal and one external examiner will conduct the viva.

4. INTERNSHIP

4.1 Eligibility for internship

Not applicable.

4.2 Details of Internship Training

Not applicable.

4.3 Model of Internship Mark lists

Not applicable.

4.4 Extension rules

Not applicable.

4.5 Details of training given

Not applicable.

5. ANNEXURES

5.1 Check Lists for Monitoring: Log Book, Seminar, Assessment etc. to be formulated by the curriculum committee of the concerned Institution.

APPENDIX

Recommended References books

PRINCIPLES AND PRACTICE OF MANAGEMENT

1. Harold Koontz, Heinz, Weimrich : Management
2. James A.F, Stones , R.Edward:Management
3. Rustom S.Daver : principles of management
4. ripathi P.C and Reddy P.N. : Principles of Management
5. James A William : Hospital management , Mac Millan Education Ltd, New Delhi Rao U.S, Narayan P.S, : Management Cojncepts and Thought

EPIDEMIOLOGY AND PUBLIC HEALTH

1. Park k : Text book of preventive & Social medicine.M/s Banarasidas, Jabalpur.
2. Robert L. Hetal : Principles of Epidemiology – A self teaching guide. Academic press London.
3. Morris J.N. : Uses of Epidemiology, Churchil Livingstone, London.
4. Benean Sm A.S : Control of Communicable diseases in man American PH Association . NY.
5. Holland WW.Detels R : Oxford Text book of public Health : Methods of Public Health London.
6. Kelsey J.L : Methods of observational research Oxford Unversity Press, London.

BASIC MEDICAL SCIENCES

1. Review of Medical Physiology: WF Ganong
2. Physiology : K. Madhavan Kutty
3. Microbiology : Ananthanarayana
4. Parasitology : Chatterjee
5. Entomology : Roy and Brown.
6. Ramakrishnani : Text book of Biochemistry
7. Conn EE Stumpf PK : Text book of biochemistry
8. Murugeshan N:Concise text book of Biochemistry,Jaypee Brothers,Ansari road,New Delhi.
9. Tripathi K.D. Essentials of medical pharmacology,Jaypee Brothers,Ansari Road, N.Delhi
10. St.Johns Ambulance Association:First Aid to Injured,New Delhi.
11. Bandhy Mukta : First Aid Nursing in the home, Universal Book Co,N. Delhi.
12. Robbins Angel & Kumar : Basic pathology, Saunders Co,Philadelphia
13. Govan Mac Farlance & Calender : Pathology illustrated,Churchill Livingstone,London.

HEALTH SYSTEM RESEARCH (BIOSTATISTICS)

1. Rao NSN : Elements of Health Statistics. Tata Book agency, Varanasi
2. Mahajan B.K : Methods of biostatistics, Kothari book depot, A.D Marg, Bombay
3. Potti L.R : A text book of statistics,Yamuna publications,Sreekanteshwaram, Trivandrum.
4. Lancaster H.O: Introduction to medical statistics, Johnwiley & sons, New York.
5. Leius A.E : Biostatistics,Reinhold publishing Co,New York.
6. Cotton T : Statistics in medicine,Little Brown & Co, Boston.
7. Hill A.B : Principles of medical statistics, Oxford university press, New York.

SOCIAL SCIENCES

1. Mac Iver and Page : Society-introductory analysis
2. Johnson : Sociology
3. Fitcher : Sociology
4. Gurwitch & Moore : Twentieth century sociology
5. Apple Dorain : Social Pathology
6. Cockram : Medical Sociology
7. Mamoria : Social problems and social disorganisation in India
8. Smelser : Sociology
9. Fletcher R : Making of sociology
10. Hollander E.P : Principles and methods of social psychology
11. Kruch and Churchfiedi: Theories and problems of Soc.Psychology
12. Hooingsh end : Sickness and sociology
13. Mechanic : Medical Sociology

HEALTH EDUCATION – 1 (DEVELOPMENT & PROMOTION)

1. Ramachandran & Dharmalingam : Health education – a new approach, Vikas publishing
2. Park K ,Park’s Textbook of preventive and social medicine, M/s Banarasidas, Jabalpur
3. Banerji D, Poverty, class and health promotion and protection WHO, Copenhagen
4. Kari S,Lankinen et al: Health and diseases in developing countries, Mac Milan, Press, London
5. David Morelyi : Practicing Health for all, Oxford university press, London
6. Banerji D: Health and family planning services in India, Lok Prakash, New Delhi
7. WHO : Intersectoral Linkages and health development
8. World Bank : World Bank Development report, Washington
9. Green A : An Introduction to health planning in developing countries, Oxford University Press
10. Anita N I I : People health in people hands, the foundation for research in community health
11. Ebrahim G M : Primary health care – re-orientation organizational support, Mac Millan, London.

EPIDEMIOLOGY & PUBLIC HEALTH

1. K.Park’s text book of preventive and social medicine,M/s Banarasidas Bhanot, Jabalpur
2. ICMAR & CISSR: Health for all– An alternative strategy,Indian institute of education, Pune.
3. Maxcy David et al : Practicing health for all Oxford university press, London.
4. Anderson C.L. & Mosby C.V : Community Health
5. Noble John : Primary care & practice of medicine,Little brown & G. Bosten
6. Clerk Doncan : preventive and community medicine, Hoder & Strongton, London.
7. WHO : Formating strategies of health for all by 2000, Geneva
8. Newell : Health by the people, WHO, Geneva.
9. Llich Evan : Medical Nemesis,Random House Inc.New York
10. Dubos R.J. Man medicine and environment, New Anderson Library, New York
11. Jaggi,O.P. : Indian system of medicine, Atma Ram & Sons, N. Delhi – 6.
12. Susser M.W : Casual thinking in health sciences, Oxford university press London
13. Holland et al : Oxford text book of public health, oxford university press, London
14. King Maurice : Medical care in developing countries,Oxford university press, London
15. Kari S : Health and disease in deveplosing countries, Mac Millan Press Ltd,London

HEALTH SYSTEM RESEARCH

1. Sarantakos : Social research, Mac Millan press, Harupshire, Australia
2. Festinger & Katz : Social research, Longman, London
3. Jahoda Maric et al : Research methods in social relations, free press, New York
4. Kothari , C.R : Research methodology, Viswaprakasan, Bombay
5. Park K : Park's text book of preventive and social medicine, M/s Banarasidas Bhanot, Jabalpur

SOCIAL SCIENCES: Anthropology & Economics

1. Mc Guire et al : The Economics of Health Care, Routeledge and Kegan Paul, London
2. Foster and Anderson : Medical Anthropology, Wiley, New York
3. Keesing R.M : Culture Anthropology, Holt Rinehurt & Winston, New York
4. Landy Culture and disease, Fice press, London
5. Edward Shaprio : Macro Economic Analysis
6. Koutsiyannis : Modern Micro Economics, Himalaya publishing Co, Bombay
7. Pylee M.V : Managerial Economics, Himalaya Publishing Co, Bombay
8. Gopalakrishnan D : Managerial economics, Himalaya publishing Co, Bombay
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