Indian Institute of Public Health- Hyderabad (IIPHH)

Master of Public Health (MPH) Batch 2023-2025

Course guide

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MPH Course Teaching Model

Semester I			
No.	**Course Title**	**Credits**	**Teaching & Activity Hours**
01	Introduction to Public Health	3	48
02	Social and Behavioural Sciences in Health	3	48
03	Epidemiology I	3	48
04	Biostatistics & Data Management – I	3	48
05	Demography	1	16
06	Environmental & Occupational Health--I	3	48
07	Health Policy & Health Systems	3	48
08	Field visits	1	16
	Semester wise total	**20**	**320**

I Semester examinations

Semester Break

Semester II			
No.	**Course Title**	**Credits**	**Teaching & Activity Hours**
09	Health policy & management – II (Health management with an introduction to health economics)	3	48
10	Environmental & occupational health - II	3	48
11	Social & Behavioral sciences - II	3	48
12	Epidemiology -- II	3	48
13	Journal club	2	32
14	Biostatistics & data management -- II	3	48
15	Research methods	3	48
16	Leadership, communication & training skills (one week workshop)	2	32
17	Field visits	1	16
	Semester wise total	**23**	**368**

Internship

Pre-university Examinations

!st Year MPH University Examination

Semester III			
No.	**Course Title**	**Credits**	**Teaching & Activity Hours**
18	Monitoring & evaluation	3	48
19	Disaster preparedness & management	2	36
	SELECT A TRACK - Student has to opt any one of the following track:- 1. Biostatistics & Data Management 2. Non-communicable Disease Epidemiology 3. Public Health Disability 4. Public Health Surveillance	12	192
21	Field visits	1	16
	Semester wise total	**18**	**292**

III Semester examinations

Semester Break

Semester IV			
No.	**Course Title**	**Credits**	**Teaching & Activity Hours**
22	Dissertation	10	160
23	Seminars on Gender, vulnerable population	2	32
24	Seminars on National health & nutrition Programmes	2	32
25	Seminars on recent and emerging issues	1	16
26	Ethics & public health laws	2	32
27	Grant writing	2	32
	Semester wise total	**19**	**272**
	Total credits and teaching & activity hours for all semesters	**80**	**1284**

Dissertation

Pre-university Examinations

2nd Year MPH University Examination

Module Syllabus

Semester I

1. Introduction to Public Health module:

- Discussions about Public health aspects and experiences of students
- Lectures on Epidemic of HIV/AIDS and Public health responses
- Elimination of Polio in India, Public health definition and Key terms, and A public health approach
- Core functions and essential services of Public Health
- Stakeholder roles in Public Health and Determining and influencing the Public's health
- History of Public Health, Demographics and Health indicators in India, Surveillance in India
- Universal Health coverage in India
- Health care systems across the world brief
- International Health Regulations, Global Health Policy, MDGs / SDGs
- Intersectoral coordination for health
- ICDS scheme
- Eradication of Smallpox in India
- Public health innovations in India
- Social determinants of Health
- Visit to Families in a resettlement colony and visit to Primary Health Centre (PHC)

Student presentations on

- Health priorities in India
- Evolution of public health in India
- Health care system in India
- Health regulations and Acts in India
- Human resource in Public health in India- Issues
- Health system determinants of Health, Health status and determinants in a resettlement colony

2. Social & Behavioural Sciences in Health – I

- Introduction to and scope of social & behavioural sciences.
- Social determinants of health – A historical analysis of morbidity, mortality, birth rates from the beginning of the last century; society, social structure.
- Film appreciation.

- Social stratification and social inequality; caste, class and gender; roots, dimensions and magnitude of inequity in health look at important health indicators across caste in NFHS date (or) gender differentials in NFHS data, social change.
- Industrialization, urbanization, social mobility, implications on health of individual and groups.
- Disparities in urban health – health situation of urban poor.
- Economics and health; health and development, globalization and health.
- Equity, indices of equity, socio-economic classifications.
- Power, authority, bureaucracy, state and government, decentralization, context of policy making in developing countries.
- Decentralization under NRHM – role of PRI vis-à-vis doctors, culture, norms, values, role, status, identity.
- Cultural & social barriers for behaviour change – female age at marriage or low female age at marriage – cause, consequences and differentials.
- Socio-economic and cultural determinants of child malnutrition in India.
- Case finding and case holding in TB; an understanding from social and behavioural science perspective.
- Medical pluralism, professional and folk systems of medicine position of alternative medical systems in Indian Public Health

3. Epidemiology – I

- Dynamics of disease transmission
- Applications of epidemiology
- Natural history of disease
- Levels of prevention
- Measuring the occurrence of disease – morbidity and mortality
- Measures of frequency – incidence and prevalence
- Measures of association– risk, odds, OR, RR, AR and AR%
- Hills criterion: from association to causation Study designs– Observational and experimental studies; cross sectional, case control, cohort and randomised controlled trials
- Screening concepts
- Assessing validity and reliability of diagnostic and screening tests –Sensitivity, specificity, Positive Productive Value (PPV) and Negative Productive Value (NPV)
- Deriving inferences from epidemiologic studies
- Conceptual understanding of Bias, confounding, and interaction

4. Biostatistics & Data Management – I

Introduction to Biostatistics

- What is biostatistics? Relevance of biostatistics in the field of public health.
- Why learn Biostatistics? Understand the use and abuse of statistics in day-to-day life, in magazines, books, articles, etc.
- Data handling, discussion on the material collected by the students.
- Elementary concepts like variables, types of variables, relationship between variables, measurement scales, types of data, types of charts, data presentation; data classification, types, etc.

Descriptive Statistics

- Measures of central tendency (arithmetic mean, geometric mean, harmonic mean, mode, median) usage of these measures in daily life.
- Descriptive statistics, measures of dispersion (range, standard deviation, variance, coefficient of variance, skewness, kurtosis) correct usage of these measures in different situations.
- Descriptive statistics, summary statistics.
- Frequency distribution, cumulative frequency distribution, quartiles, quintiles, percentiles, interquartile range, stem and leaf plots, box plots

Probability and Probability distributions

- Introduction to probability.
- Discrete and continuous random variables.
- Theoretical probability, subjective probability.
- Long-run relative frequency.
- Additional rule, multiplication rule, conditional probability, joint probability, marginal probability.
- Probability distribution function, cumulative distribution function.
- Bernoulli trial.
- Binomial distribution: mean and variance of binominal distribution; uniform distribution, Poisson distribution; poisson process, mean and variance of Poisson distribution, poisson approximation to binomial distribution, continuous distribution – normal distribution.
- Properties of normal distribution; continuous distribution – normal distribution and properties of normal distribution, area under normal curve, z-score standard normal distribution, probability tables, quantile-quantile plots(Q-Q) plots, normal approximation to binomial and poisson distribution

Sampling distributions and estimation

- Defining sample, defining population, parameter and statistic.
- Why sample and how to collect a sample, random sampling.
- Concept of standard error, sampling error.
- Small sampling distribution, sampling distribution mean – single sample mean and difference between two sample means.
- Sampling distribution of sample proportion - single sample proportion, difference between two sample proportions.
- Central limit theorem, parametric estimation – point / interval estimation, confidence intervals, point and interval estimation

Hypothesis Testing

- Need for hypothesis testing, defining null and alternative hypothesis.
- Type I/II error.
- p value, level of significance, z statistic, rejection and acceptance region.
- One sample / two sample tests, z test, independent t/ paired t, one-tailed/two tailed tests of significance.
- Need for non-parametric tests, single sample test, sign test, run test, median test, Mann-Whitney U test, Wilcoxon signed rank test, Wilcoxon rank sum test, Kolmogorov-Smirnov Test.
- Kruskal-Wallis one-way analysis of variance by ranks, Friedman test for repeated observations, chi-square tests, non-parametric tests

Analysis of Variance

- Theory of ANOVA.
- Essentials of ANOVA, global test for significance F statistic.
- ANOVA table, single factor ANOVA, multiple comparison tests and adjusted p-values); two factor ANOVA.
- ANOVA concepts and interpretation, repeated measures ANOVA concepts usage

5. Demography

- **Introduction to Demography and its data sources**
  - Definition and scope; relation with other disciplines
  - Basic measures and concepts
  - Sources of date in demography viz., census of India, sample registration system, National Family Health Survey (NFHS), District level health Surveys (DLHS), National Sample Survey (NSS) and other surveys
- Nature and use of demographic data for policy making – eg. Delimitation of constituency, manpower planning
- Composition, structure and growth of population – sex ratio, age dependency

ratio, population pyramid, rate and growth of population, Natural Increase, linear, geometric and exponential growth rate, Demographic Transition, Demographic Dividend.

- Dwindling sex ratio in India: Implications to our society
- Calculation: Composition, structure and growth of population
- Fertility Measures – Concepts, calculation, scenario – Crude birth rate, general fertility rate, age specific fertility rate, total fertility rate, gross reproduction rate, net reproductive rate, child-women ratio, proximate determinants of fertility; viz., percentage of women in Union, Percentage of women in breastfeeding, contraceptive prevalence rate, abortion rate and changing fertility scenario in India.
- Fertility and Religion in India
- Calculation of fertility rates
- Mortality measures, concepts, calculation, scenario viz., crude death rate, age specific death rate, cause specific death rate, measures of infant and child mortality, maternal mortality rate / ratio and changing mortality scenario in India
- Impact of HIV/AIDS on demographic profile
- Calculation of mortality rates
- Migration and health – definition of migration; measuring migration; Immigration or immigrations rate and emigration or out migration rate; Net Migration Rate; Migration selectivity, demographic, educational and economic, causes of migration, relevance of push and pull factors, migration and health
- Migration and rapid urbanization: Impact on health and environment · Life tables – definition and use of Life tables, construction of life tables · Population projection – projection of population size – different methods · Ageing of population – Is it an issue in India?
- India's population policy – evolution of population policies in India and National · Population Policy links with other policies: NHP, NRHM
- Population programme in India: History of different approaches and its linkages with politics
- Group project – students will take one particular topic in demography like fertility / mortality /migration issues in India / state – analyze, interpret data and present the findings

6. Environmental and Occupational Health – I

- Introduction to the environmental burden of disease in India and Globally.
- Basic concepts including environmental health, ecology, toxicology.
- Environmental health economics; the inconvenient truth.
- Estimating exposure, dose response and outcome, definition, exposure assessment,

dose response relationship, toxicological paradigm, analysis of human exposure, estimating exposure, dose, response and outcome.

- Water pollution; types of pollution; major sources, water quality standards, water supply and treatment, water quality analysis.
- Indoor and outdoor air pollution; human and man-made sources, health effects, control measures, air quality monitoring.
- Solid waste management, biomedical waste, the management of biomedical waste in a hospital setting.
- Noise pollution, sources of noise pollution, mitigating factors and tolerance levels, health effects, estimating the tolerance level of noise.
- Ventilation, light, housing; housing and health, housing for migrant and low-income populations.
- Radiation, meteorological environment, principles of radiation physics, measurement, risks, control and management.
- Globalization and its impact on the environment, climate change, bioterrorism.
- Detailed discussion and debate on global warming and its impact in India. land use, depletion of natural resources, toxic substances analysis.
- Environmental impact assessment, definition, objectives, principles and steps in carrying out the assessment.
- GIS, environmental disasters.
- Food safety and sanitation, common food borne diseases hazards, food preservation, food and drug administration act, food testing for chemicals.
- Environmental legislations in India, air pollution act, noise pollution act, water pollution control act, etc.. Critical analysis of the implementation of the EH legislation.

7. Health Policy Management – I (Health Policy and Systems)

- Introduction and course overview.
- Introducing Health Policy
  - Definitions of policy
  - The policy life cycle
  - Policy triangle
  - Basis of health policy, types of health policies, levels of policy making for health, national health policy
  - Health superstructure key institutions – treatment of health in the constitution, hierarchies of key institutions involved in making and executing decisions and their respective roles at national, state, district and primary level
  - Regulatory institutions

- Major health programmes
- Introduction to major international organizations and donors, their roles vis-à-vis national health
- Health services overview – curative and preventive services, primary, secondary and tertiary services
- Public health service delivery system in India – rural and urban functions, staffing and administration of different levels of health care institutions, private health care industry.

- Foundations of health policy making – disease burdens, health needs, right to health, types of equity, evidence-based health, cost benefit and cost effectiveness, administrative efficiency.
- Theories or policy process – types of scale of policy, the policy triangle of actors, contexts, content and process, policy actors and actor interests, distributions of power in society as they bear on health; elitist models, vulnerable groups, rational and incremental models of policy making top-down and bottom-up approaches;
- Health services lab.
- Equity, access and quality – types of equity in health service, significance of equity, how can equity be improved.
- Types or access to health, measures to improve access, meanings of quality in health services, different perspectives, quality enhancement fund flows, financing mechanisms, government private and donor spending; contemporary situation, health insurance; situation, models, approaches, national health accounts, financing models; health financing.
- Policy analysis
  - Applying the policy triangle
  - Defining a policy issue and reviewing the literature for process and contexts.
  - Mapping the actors; simple stakeholder matrix for a policy issue, with respective type of involvement, extent of influence, shifts in position.
  - Analysing policy – different policy issues will be allocated to different groups, which they will be asked to analyse using a known framework (policy triangle) and prepare a presentation
- Comparative health systems
  - Health care delivery models
  - Financing systems, extent of state and private role
  - Cost of health care
- Elements of a brief
  - Reviewing the knowledge
  - Focusing the message presentation of findings
  - Writing a policy brief
- National health policies and programmes – treatment of health in constitutions, National health policy, AYUSH policy

- Legal framework for health
- Major health programmes under the MoHFW
- National rural and urban health missions, guest lecture by a representative of a prominent government health department, emphasis on policy processes.
- Human resources in health – definitions and role of health, workforce, levels and structure of health workforce; global and national; migration of health workforce– internal and external; issues in health workforce, absenteeism, incentives, training and retraining.
- Private sector and health – private sector in health care delivery, the private sector in related areas – health technology, pharmaceuticals, health insurance, regulatory measures and implementation gaps
- Prominent civil society organizations in health, and their roles.
- Structural adjustment, decentralization, integration, topical reform initiatives, NRHM, SAP.
- Regulating private health sector; health sector reforms; public private partnerships - PPP concept, PPPs at level of service delivery, PPPs in health financing and industry, examples of PPPs in contemporary health, PPPs for health / civil society and health.
- Pharmaceuticals and health sector – drug spending pattern in India, market structure and production priorities, R&D in drug market, pharmaceutical policies; primary health
- Original declarations and modifications, historical processes, principles of PHC, local, national and global dimensions
- PHC today; international health agreements – international laws, trade agreements impacting on health, health treaties, covenants and international declarations, international health actors and processes.
- Major donors in India and globally, international health governance and priorities, policy transfer, international health.
- Journal club discussion on a major international health policy issue of contemporary relevance such as anti-retroviral drug production and TRIPS the 10/90 gap.
- Global tobacco control, etc., planning for health – introduction, planning process, project cycle management, systems approach to project planning, planning a health service, planning health services for an administrative unit (city / block/ PHC), key considerations, operational issues, planning for health, health information systems
- Introduction, types of health information, sources of information, census, applying information, implementation of health plans.
- Monitoring & Evaluation of systems
- Designing health programme – the framework for designing a programme, good vs. bad programmes, epidemiology to determine the need of the program, program goals, programme structuring.

- Utilizing research, health technologies – types of technology in health, demand and supply gaps, cost and quality issues, emerging issues and new technology.
- Globalization and health – global health inequities, what is globalization?
- Intellectual property rights, implications on access to medicines in developing countries
- GATS – general agreements on trade in services – globalization and health – implications for disease patterns implementing a health programme – implementation issues in programme design (man, material and money) public vs. private services
- Addressing vulnerable populations, meeting requirements of donors, designing a health programme – monitoring and evaluation of a programme, mid-course correction / modification, national health policy , contemporary themes in national health
- NRHM /NUHM, recent health reforms, typical themes in health policy , student evaluation; governance in health – planning for large populations, oversight, priority setting, accountability, performance, assessing success, a prominent guest lecturer in the field will be invited.

Semester II

9. Health Policy Management – II

(Health Management with Introduction to Health Economics)

- Health care environment and organizational stakeholders, governance – vision, mission, values and goals, management and working in teams
- Managerial decision making – managing and working in teams, management styles
- Introduction to project cycle management (PCM), project cycle management tools,
- Managing implementation – PCM tools
- Logistics management PCM tools
- Quality assurance in health projects
- Measuring performance and quality assurance
- Budgeting and financial management and HR in health organization
- Managerial expectations and employee performance, Demand and supply of health care
- Factors affecting health and Economic evaluation
- Revenue generation and pooling, health care markets

10. Environmental and Occupational Health – II

- Environmental health economics – concept and its relevance to environmental health programs in India
- Genetically modified food, pesticides
- Introduction to the burden of occupational health, definition, concepts, industrial health, industrial medicine and occupational health, history, occupational health hazards
- Diseases due to temperature, heat exhaustion, and heat cramps, heat stroke, cold related hazards, acclimatization, personal protective measures.
- Asbestosis, coal workers lung diseases, silicosis, byssinosis
- Bhopal gas tragedy after 25 years and its trends
- Metal exposures diseases – health effects of exposure to uranium, mercury, lead, coal mine workers
- Cotton industry workers
- Gender, women and work, women and occupational health
- Exposures to organic and inorganic chemicals, diseases associated with

hydrocarbons and other solvents

- Occupational health services, introduction to health screening procedures; demos of equipment
- OHS: Identifying hazards at work place – risk assessment and communication, making the society green – walk nature trail (coordinating with centre for environmental education); risk assessment and communication
- Occupational health services – surveillance systems (Periodic medical examination); ergonomics and work site health promotion; occupational health legislations in India and its real implementation, identifying hazards – textile industry, hospital, hotels, institutes, IT offices, etc.
- Introduction to medical entomology – mosquito; sand fly; fleas; insecticides; ticks and itch mites etc., life history and its impact on the environment; role of health professionals as a responsible citizen, risk assessment and communication, review of the course and wrap up.

11. Social and Behavioural Sciences – II

- Health seeking for neonatal and childhood morbidities
- Socio-cultural determinants of care seeking for delivery
- Institutionalization of medicine, professionalization in medicine, professional ethics and medical practice
- Health as commodity
- Medicine as ideology; social and behavioural aspects of epidemiology
- Community organization
- Psychological processes – principles of perception and learning, motivation, attitude, etc. Theories and models to understand individual behaviour
- Health behaviour and the ecological models, psychological process – 2-attitude, personality and motivation; role of attitude, prejudice, stereotypes, stigma in care seeking and care giving
- Social and behavioural issues in control and prevention of hiv/aids
- Stress and coping behaviour
- Coping strategies – progressive muscular relaxation; cognitive imagery techniques, measurement of stress through a psychometric test.

12. Epidemiology – II

- Concepts behind Surveillance
- Investigation of an outbreak
- Epidemic and types of epidemics
- Critical appraisal of epidemiological studies

- Using epidemiology to evaluate health services
- Introduction to standardization
- Introduction to infectious disease epidemiology
- Introduction to Non communicable diseases epidemiology
- Introduction to Nutritional epidemiology of India
- Identifying the roles of genetic and environmental factors in disease causation
- Questionnaire design, survey design and conducting research in epidemiological studies

13. Journal Club

14. Biostatistics & Data Management – II Categorical Data

Categorical Data Analysis

- Describing and interpreting contingency tables
- Comparing two proportions using chi-square, testing independence in two-way contingency tables, 2xc contingency tables, kx2 contingency tables
- Testing independence in multiway tables
- Correlation – correlation concepts and use, types of correlation, correlation analysis using interval, ordinal and categorical data, correlation analysis

Linear regression:

- Introduction to linear regression, regression model, assumption
- Principle of least squares, line of best fit
- Regression diagnostics
- Coefficient of determination, residual analysis, lack of fit test
- Estimating the variance
- Model adequacy
- Confidence intervals and hypothesis testing – t- tests
- Sum of squares, mean sum of squares
- ANOVA approach to test significance in regression, F test.
- Multiple linear regression model, transformation
- Estimation by least squares method, properties of least square estimators, sum of squares, partial sum of squares, extra sum of squares, sequential sum of squares
- Hypothesis testing – test for significance of regression, t test partial F test, tests of model reduction, prediction, regression diagnostics, leverage, influence and outliers, measures of influence, model violations, linearity, normality,

constancy of error, variance and model adequacy

Sampling Technique:

- Sampling design
  - Probability and non-probability sampling
  - Advantages and disadvantages of sampling
  - Types of sampling designs
  - Steps in sampling design
  - Power and sample size determination
  - Why sample size is important
  - How low power can affect study results, factors which influence the power of statistical tests.

Data Management:

- Data loading from and to different formats
- Data capture by developing interactive questionnaires in excel / epi-info (entering, editing, updating and sorting data, importing and exporting data, manipulating data using formulae).
- Maintaining database structures, data verification and validation, data checks, range checks, consistency checks, check for duplicates, data calculation

15. Research Methods

Introduction to research methods

- Theory and main streams
- Definition of research, background on the theoretical basis of research methods (different roots and ideologies)
- Definition and qualitative and quantitative research including differences, strengths, weaknesses and application

Overview of literature review

- Importance and relevance of literature reviews
- Identification of resources for conducting reviews
- Preparation of a brief literature review document for the given topic of study

Problem statement and formulation of research objectives

- Problem description
- Features of well-framed research objectives and hypothesis
- Framing aim, objectives and research questions for a study with a discussion of how these may vary for quantitative and qualitative research
- Framing the research concept and defining variables
- Making a conceptual framework for the study
- Meaning of variables, and identification of various variables that need to be incorporated in the study
- Finalization of specific research objectives for the research project that has been chosen.
- Development of a conceptual framework for the study

Ethics in research

- Values and codes of practice
- Principles of informed consent
- Confidentiality and responsibilities to research participants
- Responsibilities to oneself and co-workers
- Ethical dilemmas and conflicts
- Critical discussion of ethics in research
- Development of informed consent forms

Reliability and validity

- The meaning and importance of reliability and validity in research
- Differences between validity and reliability
- Types of reliability and validity explained in the context of quantitative and qualitative research

Overview of study design

- Location of the study and sampling for a quantitative study – choice of appropriate location for a research study, review of concepts in sampling, sample size and power, description and application of various sampling techniques in the context of designing a survey.
- Types of survey methods and recruitment of subjects for research – choosing a location of the given study topic, choosing sample technique and determining sample size for the study.
- Quantitative tools for data collection – description of various quantitative data collection tools, questionnaire design, bias and concept of piloting · Designing a questionnaire for the chosen topic

- Data collection plan and data management
- Data collection for survey
- Discussion on problems faced during data collection and transcription and develop a plan for quantitative analysis

- Introduction to qualitative research in public health – understanding differences from Quantitative research, contribution of qualitative research in health·
- Introduction to reflexivity and Discussion of different approaches such as ethnography, action research, PRA.
- Sampling and subject recruitment in qualitative research - Choosing a location, defining sample and sample size for a qualitative study, understanding differences between a qualitative and quantitative sample, recruitment of study participants.
- Data collection techniques in qualitative research
    - **A.** Overview and Introduction to different techniques for data collection: e.g. case interviews, focus group discussions, observational techniques, documentary evidence.
    - **B.** Documentary evidence use of existing sources, public records, personal documents, methodological issues in using documentary evidence
    - **C.** Observation Participant and non- participant observations, Ethnography and participant observations, overt and covert roles.
    - **D.** Interviews - Interview techniques: developing skills of interviewing, cultural factors and interviewing, private/public accounts, social differences in interviews, elite interviewing, and key informant interviews.
    - **E.** Focus group discussion - Different kinds of group interviews, focus groups, natural groups, developing appropriate methods for the setting. Show examples of FGD guides to the class.
    - Conduct one FGD in the class and discuss the FGD. FGD to be recorded. · Qualitative data- transcription and cleaning - (Manage and store collected data, bearing in mind issues of record identification, confidentiality, etc) ·
    - Data analysis in qualitative research (Theoretical basis) - Principles of different approaches in analysis, Thematic content analysis, Grounded theory, Rigour in analysis, Other analysis, Validity, generalizability and transferability. - Note- this course does not cover qualitative data analysis in detail.
    - Report writing and class presentations - Different sections of the research report in a standard format, (students to be shown research papers and how these have been structured). Students to be exposed to the basics of giving a presentation on a research topic.
- Research methods in Public Health and allied disciplines - Collaborating

across disciplines and institutions, linking research methods with epidemiology, different methods for different questions, trans-disciplinary work, communicating across disciplines.

16. Leadership, communication and training skills

Introduction

- Knowing each other, ground rules, workshop expectations, workshop objectives and introduction to the course.
- Key leadership and management principles – management and leadership theories, difference between leaders and managers, public health leadership.
- Leadership styles – classical leadership styles, situational leadership and identifying one's own role.

  o Attitudes, behaviour, relations and gaps, communication, theories and channels and modes of communication, communication styles, verbal / nonverbal, individual differences, small group communication, failures in communication, persuasion

  o Advocacy – agenda setting

Teams

- Theory of teams, stages of team development, team and group, group dynamics, team roles, team building, conflict management, theories, sources, resolution.

  o Communicating within the organization – up, down and horizontal; transactional analysis;

- Creative problem solving, brainstorming, NGT, looking at leaders, leadership and performance.
- The Pygmallion effect, risk and crisis communication, Am I a leader
- Leadership abilities, leadership competencies, my current competencies, my professional competencies, leveraging my abilities to be a leader.

  o Organizational communication tools; - use of language, emails, telephones, letters, ethics in workplace, conducting effective team meetings; where do meetings go wrong, decision making in meetings, dos and don'ts, time management

  o Facilitation skills, VIPP technique for multi stakeholder planning situation, preparing for a training needs assessment, training agenda and training

logistics, writing a training manual, training evaluation, summing up of training techniques used, relook at workshop objectives and evaluation and closure.

Semester III

17. Monitoring & Evaluation

- Overview of M&E – Introduction, Overview of M&E, M&E Plans; · Frameworks – Conceptual; Log Frame; Results Framework; M&E Framework · M&E case studies-1 - Nutrition program case study
- M&E case studies-2 - Balance scorecard case study
- Developing objectives and indicators
- Objectives and Indicators
- Non-routine sources and their quality
- Objectives and Indicators
- HMIS/other data sources and its quality
- HMIS Lab
- HMIS – Using the PRISM tool
- HMIS – PRISM tool
- Evaluating data quality
- Data quality
- Assessing M&E systems
- Impact evaluation - Overview
- Study designs

18. Disaster Preparedness and management

- India's vulnerability to disasters, major disasters in the last 3-5 years and importance of this course; Administrative structure & role of international organizations.
- Extent of damage in a disaster situation (infrastructure, human resources, communication; how survival of relief workers is threatened)
- Acute illnesses (epidemics); Chronic illnesses; Health needs of women; Health needs of children; Nutrition; Effect on health services; Other factors specific to given disasters. · Rapid assessment/ surveys
- Mass casualty – preparedness and management
- Hospital evacuation;
- Media management & communication;
- Vulnerable populations and ethics;
- Long term implications of disaster.
- Disease surveillance & response
- Water & sanitation
- Coordination of relief activities; role of IT; logistics; & communication · Psychosocial aspects

- Self-preservation
- Preparation for presentation of the entire plan

19. Tracks – Student has to opt any one of the following tracks:

1. NCD Epidemiology

Introduction: Non-communicable diseases (NCDs) are chronic diseases of slow progression which do not transmit from person to person. The challenge lies in planning effective prevention and control measures to address the public health emergency arising due to the alarming increase in NCDs and the role of lifestyle interventions for the same.

Aim: To analyze and interpret NCD epidemiology by participatory learning, during the 3rd semester course work for MPH scholars at Indian Institute of Public Health- Hyderabad, and be able to use epidemiology to address a public health problem.

Objectives: The completion of the track will enable an MPH scholar to:

· Define the natural disease history of 4 major NCDs (Cardiovascular, Diabetes, Cancers, Cerebrovascular)

· Define the natural disease history of other NCDs (Mental health, Blindness, Injuries, Nutritional, Dental)

· Understand the non-communicable disease burden globally and nationally · Comprehend and employ the concepts of epidemiological research and screening in NCDs

· Appraise NCD statistics and generate NCD related data

· Design and evaluate public health programmes focused on NCDs

Curriculum: The NCD epidemiology track will comprise of 6 units namely: **Unit I:** Basic concepts in NCD epidemiology

- Definition and uses of epidemiology
- Use of quantitative and qualitative research in NCD epidemiology
- Concept of Bias, confounding and effect modification
- Life course epidemiology
- Concept of DALY and QALY
- Concept of association and causation

- Modes and levels of prevention
- Concepts of screening

Unit II: Understanding the 4 major NCDs in terms of Epidemiology, disease burden and challenges in control

- Cancer
- Cardiovascular diseases
- Diabetes mellitus
- Cerebrovascular diseases

Unit III: Understanding other NCDs in terms of Epidemiology, disease burden and challenges in control

- Mental health disorders
- Blindness and visual impairment
- Injuries and RTA
- Nutrition related disorders
- Oral health related disorders

Unit IV: National health programmes related to NCDs

- National Programme for prevention & Control of Cancer, Diabetes, Cardiovascular Diseases & stroke
- National mental health programme
- National Programme for the Health Care for the Elderly
- National Programme for Control of Blindness & Visual Impairment ○ *National Programme* for Prevention and Management of *Trauma* and Burn *Injuries* ○ *National Oral Health Program*
- National Tobacco Control Programme
- Poshan Abhiyan
- Anaemia Mukth Bharath

- National Iodine Deficiency Disorders Control Programme

Unit V: NCD surveillance, NCD data management

Unit VI: Programme planning, implementation and evaluation

- Community needs assessment
- Selection of interventions for prevention and control
- Package of Essential Non-communicable (PEN) Disease Interventions for Primary Health Care
- Science to inform policy
- Public health programme planning and evaluation
- Data dissemination

2. Biostatistics & Data Management:

Introduction:

Data management and statistical analysis are crucial areas in any research starting from proposal making to the final manuscript writing. The major key features of this field are maintenance of the data, providing better modelling strategies, and interpretation of the results in a standard way.

Aim:

- To conceptually understand the data management and use of Biostatistics methods for making the better inference of real applications.
- To apply these methods to real world problems, using statistical software and draw valid conclusions.
- To present these conclusions concisely and clearly.

Learning objectives: Upon successful completion of this course, students will be able to:

- Develop a thorough understanding of statistical analysis techniques and their applications
- Design and conduct a sample survey/clinical trials
- Become familiar with the assumption related to different statistical models
- Use statistical methods and build proper methodology to analyze data
- Understand the data management and statistical analysis using various software's

- Evaluate the results of analyses and make use of remedial measures
- Apply the knowledge and techniques learned in this course to your data and problems

Curriculum: The Biostatistics and data management track will comprise the following areas:

Applied regression analysis: This area includes regression analysis techniques through hand on data analysis, with focuses on the application of regression models in practice. The fundamentals of simple linear regression, multiple linear regression, and nonlinear regression are introduced, involving the use of standard statistical software such as Excel, Stata, Epi Info, and R-language.

The following topics are studied:

- Regression Inference
- Inference on Mean Response and Prediction
- ANOVA and General Linear Test
- Coefficient of Determination
- Residual Graphics and Diagnostics
- Residual Diagnostic Tests
- Lack of Fit Test
- Multiple Regression (including dummy variables)
- Model Selection
- Influence, Leverage, and Multicollinearity
- Nonlinear Regression
- Logistic Regression
- Poisson Regression, and Generalized Linear Models.

Survival analysis:

This field covers:

- The basic formulations of statistical models for survival analysis, some theoretical background, and some real examples of survival analysis in biomedical studies.
- Commonly used statistical software such as Stata and R is introduced to analyze the survival data.

The following topics are studied:

- Introduction to the theory and methods of survival analysis, including modelling time-to-event data, methods for the treatment of censoring (including the right/left censoring and double censoring)
- NelsonAalen estimators
- Kaplan-Meier estimators

- Estimation of hazard functions, and the Cox proportional hazard models and their extensions.

Design and analysis of sample surveys:

- This area explains key concepts in the design of sample surveys.
- Describe the study designs and identify key issues in data management for sample surveys, involving the computer applications such as MS-Access, visual basic, Epi Info, and Kobo.

The following topics are studied:

- Basic concepts of sample survey
- How to design surveys and analyse survey data
- Sampling techniques
- Sample size determination and power analysis, practical problems in survey design.
- Analyze the sample survey data using statistical software.

Design and analysis of clinical trials:

- This area explains key concepts in the design of clinical trials.
- Describe the study designs and identify key issues in data management for clinical trials.

The following topics are studied:

- Learn the ethics, principles, and conduct of clinical trials for medical research.
- Discuss various study designs.
- The importance of equipoise, informed consent, and the use of intent-to-treat analysis is emphasized.
- Data collection and management for the conduct of clinical trials are briefly addressed.
- Appropriate statistical tools and technique is discussed to properly analyse the clinical trials.

Systematic reviews and meta-analysis:

This field is useful for evidence-based clinical and public health practice. This course will provide a detailed description of the systematic review process, discuss the strengths and limitations of the method, and provide step-by-step guidance on how to perform a systematic review and meta-analysis.

The following topics are studied**:**

- Formulation of the review question
- Searching of literature
- Quality assessment of studies
- Data extraction
- Meta-analytic methods
- Assessment of heterogeneity and report writing.

Longitudinal data analysis:

This field introduces statistical models and methods for the analysis of longitudinal data, i.e. data collected repeatedly on experimental units over time. The practical application is carried out using statistical software's special R and Stata.

The following topics are studied:

- Concepts and applications of longitudinal data analysis
- Random-effects models, Covariance pattern models
- Random-effects logistic regression models,
- Missing data in longitudinal studies.

3. Public Health Surveillance:

- Introduction to Surveillance – Definition and history of surveillance and purposes of surveillance
- Basic concepts in surveillance – acute and chronic disease surveillance, active and passive surveillance and sentinel surveillance
- Establishment of a surveillance system – potential sources of data; challenges in surveillance programs for developing countries; health problems of public health importance to be under surveillance, devising appropriate case definitions for surveillance, inter and intra-sectoral coordination in surveillance program, establishment of a reporting format, analysis and dissemination of surveillance data
- Evaluation of a surveillance system
- National programs for surveillance:
    - NSPCD to IDSP
    - Integration and IDSP
    - Staffing and organizational set up under IDSP
    - Diseases under surveillance in IDSP and reporting units
    - MIS under IDSP – reporting formats at different levels and data handling under IDSP
    - Partnerships in IDSP – forging and managing partnerships
- Outbreak – Diagnosis and follow up action under IDSP – Prediction of outbreaks

and time trends of diseases; diagnosing an outbreak; outbreak response

- NCD Surveillance in IDSP; Need for NCD Surveillance and survey conduction · Use of information technology in IDSP.

4. Public Health Disability & Research:

Unit I. Introduction: Disability, Public health and Development

- What is Disability?
- Disability Facts and FYIs, Both Globally and Within India
- Public Health Approaches to Disability- Interdisciplinary Nature of Public health ○ Principles of Planning: Programme Planning Cycle
- Social and Psychological Experience of disability
- Types of Stigma, Poverty Disability Cycle, Disability Stigma, etc

Unit II. Defining Disability

- ICF and Medical Model of Disability
- Social Model of Disability
- Human Rights and Disability- Inclusionment Theory/ UN Convention on the Rights of persons with Disabilities.
- Panel Discussion on Models of Disability

Unit III. Disability Epidemiology

- Introduction to Epidemiology
- Introduction to Basic Statistics and their application to disability studies ○ Assessing and Diagnosing Disability
- Disability Surveys, Survey Designs, and Examples of Survey Data
- Disability Statistics and Demographics
- Determinants of Disability and Preventable Disability
- Developing preventative strategies for avoidable disabling conditions in own area
- Disability Disparities- return discussion of disability and poverty cycle

Unit IV. Managing Disability

- Introduction to the Community Based Rehabilitation Matrix
- Convergence of CBR with public health approach
- Public Resources and Services for the Disabled, Disability Policy
- Public and Private Interaction in providing Disabled Services
- Human Rights and Advocacy for the Disabled- A look at how policy affect benefits and concessions for the disabled

- Inclusion Programs for the Disabled; Partnerships for disability rights and employment
- Disability in context- from grassroots movements to policy change.
- SWOT analysis on disability services and rights for the disabled for a particular country/region/locality

Unit V. Research In Disability

- Disability Theories- Comparison of Research completed using these theories ○ Selected Topics In Disability: Sociology of Disability
- Selected Topics in Disability: Anthropology of Disability
- Developing a Plan for Disability at district/unit level using the planning cycle identifying the problem and determining the objectives
- Developing a plan…- Prioritization and monitoring tool
- Service Learning Visits and Presentations
- Discussion on Service Learning Visits- What was learned and how can we apply this after course is finished

Semester IV

20. Dissertation (including internship)

21. Gender, Vulnerable Population

- Gender and Health
- Gender inequalities in society
- Inequities in health status
- Inequities of access
- Women's health - special needs and vulnerabilities
- Men's health – special needs and vulnerabilities
- Men's health – special needs and vulnerabilities
- Gender-based and sexual violence
- Policies and movements around gender and health
- Children's rights and child health

Vulnerable populations

- Marginalized populations – inequities in health states and access to health
- Rural health
- Urban health inequities
- Migrant health
- Health of tribal and indigenous populations
- Health of scheduled caste populations and religious minorities
- Health and sexual minorities
- Vulnerable Populations
- Case Study: (e.g. Tribal health, MSM and HIV, slum populations)

22. National Health and nutrition programmes

- Systems approach
- Aims, goals, targets and objectives - Input, process, output, outcome and impact ○ Health Care Delivery System in India - Organization of Health Services in Rural & Urban areas;
- Role of Private Sector and Civil Society
- AYUSH
- Informal Providers
- Health care delivery systems in developed countries – Lessons for India

- Health Care Delivery System in India ; Organization of services; Role of various sectors: Public and private; modern and traditional Role of Civil Society; Health care delivery systems in developed countries – Lessons for India; National Health Programmes; Evaluation of a health programme

National Health Programmes in India –

- National Vector-borne disease control programme – malaria, lymphatic filariasis, kala-
- azar, Japanese encephalitis, dengue fever / dengue haemorrhaging fever, chikungunya fever,
- National Leprosy Eradication Programme – NLEP
- Revised National Tuberculosis Control Programme – RNTCP
- National AIDS Control Programme – NACP
- National programme for control of blindness – NPCB
- Iodine Deficiency disorder programme – IDDP
- Universal Immunization Programme – UIP
- Reproductive and Child Health Programme – RCH
- Janani Suraksha Yojana – JSY
- National Programme for Prevention and Control of Cancer, Diabetes, ○ Cardiovascular diseases, and stroke (NPCDCS)
- Integrated Disease Surveillance Project (IDSP) Nutrition Programmes: ○ Vitamin A Prophylaxis Programme
- Prophylaxis against nutritional anaemia
- Iodine Deficiency Disorders control programme
- Special nutrition programme\Balvadi nutrition programme
- ICDS programme
- Mid-day meal programme / scheme

23. Recent / emerging issues

- Emerging Infectious Diseases;
  - Diseases due to new agents; human monkeypox, new types of diarrhoeal diseases, legionnaires disease; ebola haemorrhage fever, AIDS, Hanta virus, Creutzfeldt-jacob disease, hepatitis-E, severe acute respiratory syndrome, hepatitis C, zika virus
  - Diseases due to known variants of Pathogens
- Re-emerging Infectious Diseases
  - Malaria, Kala-azar, dengue fever, plague,
- Control of emerging and re-emerging diseases

24. Ethics and Public Health Laws

Ethics

- Introduction and basic principles
- Course overview, objectives
- Brief historical overview of ethics
- Basic moral theory, universal and relative ethics
- Fundamental bioethical principles
- Introduction to key readings
- Ethical foundations of public health
- Equity (types of equities and inequities)
- Justice (types of justice and injustice)
- Utilitarianism and population rights approaches
- Individual rights perspectives
- Rights and duties
- Relational ethics: trust, respect, process

Health and human rights

- Health as a human right
- Principles: Availability, Accessibility, Acceptability, Quality
- Stigma and discrimination - Special groups: women, children, the disabled, migrants, indigenous populations, minorities.

Individual vs population health

- Case study : (e.g. Tobacco control, family planning, vaccination programmes, mass Treatments / chemoprophylaxis, mandatory HIV testing) Professional ethics, Rights and duties (of employers, employees, donors and financers, recipients of services) ○ Professional respect and due process
- Professional codes and laws
- Ethical decision-making in public health

Research ethics – 1

- Principles of research ethics
- Purposes and ideals of health research
- History of research ethics
- Natural research ethics
- Social research ethics
- Rights and duties (of participants, researchers and donors)

Research ethics – 2

- Research procedures and practices (fieldwork ethics, consent, confidentiality and

anonymity)

- IRB requirements - Publication ethics (Attribution, authorship acknowledgment, citation, plagiarism)
- Ethical Debates
- Case study: clinical research in developing countries

Public Health Laws

- What are rights? Is there a right to public health?
- Duties of Government and the public health authority as per law
- National Health Law: Legal system in India and interaction between the Courts , Legislators and regulatory authorities
- Rights and Duties of Patients and Health Care Providers & Redressal Mechanisms
- Legal status of Public Health Management during Disaster, public health emergencies & epidemics .
- Notifiable Diseases and Locally Endemic Diseases – Legal requirements
- Environment health legislations
- Legislations for women empowerment and health
- Special Provisions for groups with special health needs
  - International conventions / treaties and regulations related to public health
  - International Health Regulations
  - Universal Declaration of Human Rights
  - Emergency Public Health Law
  - Legislation related to Quality of Professional Education and Services
  - Legislation related to Census, Birth and Death
  - Legislation related to Biotechnology & Patenting
  - Legislation related to Tobacco and Drug Control
  - The Transplantation of Human Organs Act 1994
  - The Prevention of Food Adulteration Act 1959
  - The Protection of Human Rights Act 1993
  - Legislation for Women Empowerment and Health
  - Legislation for Child Protection and Health
  - Legislation related to the Welfare Rehabilitation of Disadvantaged
  - Occupational Health & Legislation
  - Environment Health Legislations

25. Grant writing

- Participant's introduction, area of interest for proposal writing and analysis.
- Introduction to overview of the grant writing module i.e. broad goal, overall objectives, type of pedagogy, assessment, essential reading, topics covered.

- Introduction to identify and prioritize topics for proposal, identify funding sources.
- Introduction to different components of proposal, Introduction to various proposals and why they fail.
- Areas to critique to improve the proposals to succeed.
- Introduction to preparation of statement of problem.
- Importance of review of available literature for proposal writing.
- Introduction to formulation of objectives.
- Introduction to appropriate usage of research methods.
- Introduction to Log frame, Introduction to work plan.
- Introduction to budget.
- Introduction to monitoring and evaluation.
- Plan for project administration, monitoring and utilization.
- Introduction on how to prepare concept notes, executive summaries, preparation of letter of intent.
- How the proposal is evaluated by various funders, Tips for grant writing, Overview of finalizing and reviewing the proposal, Presentation of the proposal to funders

MPH Course Examinations

MPH Part-1 examination at the end of 2nd semester (at the end of the one year)

	Subjects	No. of papers	Theory Max Marks	Practical & Viva (Max Marks)	Internal Assessment Marks	Total Marks
1	Public Health	1 (one)	70	20+10=30	50	150
2	Social and Behavioral Sciences	1 (one)	70	20+10=30	50	150
3	Epidemiology	1 (one)	70	20+10=30	50	150
4	Biostatistics, Data Management & Demography	1 (one)	70	20+10=30	50	150
5	Environmental & occupational Health	1 (one)	70	20+10=30	50	150

The candidates failed on one or more subjects in 1st year many be promoted to 2nd year. But the candidate should pass all the subjects of 1st year to get eligibility to appear for 2nd year or Final year exams.

Theory examinations: 3 hours

2 essay questions carrying 10 marks each =20 marks 6 short answer questions carrying 5 marks each =30 marks 10 brief answer questions carrying 2 marks each =20 marks

Internal Assessment will be done in both semesters for a total of 50 marks for each paper/subject.

Internal Assessment marks assigned:

1st semester: 25 Marks (Class participation 10+ Assignments 15) 2nd semester: 25 Marks (Class participation 10+ Assignments 15)

MPH Part-II / Final Examination at the end of 4th semester (at the end of 2nd year)

Sl. No	**Subjects**	**No. of papers**	**Theory Max Mark s**	**Practical & Viva Max**	**Internal Assessment Marks**	**Total Marks**
1	Monitory & Evaluation	1 (one)	70	**Marks** 20+10=30	50	**150**
2	Disaster Preparedness & Management	1 (one)	70	20+10=30	50	**150**
3	Selected Track: i. Biostatistics & Data Management ii. Non Communicable diseases Epidemiology iii. Public Health Disability iv. Public Health Surveillance	2 (Two)	70+70= 14 0	40+20=20	50	**250**

4	· Gender, Vulnerable · population (Part-A) · National Health & Nutrition Programs & Recent /Emerging issues (Part-B)	1 (one)	70	20+10=30	50	**150**
5	Dissertations:	1 (one)	Write-up and presentation of results: 150	Dissertation Presentation: 50+100=150	-	**Total : 300 Marks**

Serial No. 1 to 3: 50 Marks (Class participation 15+Assignments 35)
Serial No. 4 (PART-A): 25 Marks (Class participation 10+Assignments 15) (PART-B): 25 Marks (Class participation 10+Assignments 15)

Valuation of theory answer scripts: Double valuation as in other PG courses of the University.

Pass Marks:

Theory	50%
Practicals & Viva	50%
Internal Assessment	50%
Total Aggregate	50%
Dissertations	Report- 50%, VIVA Voce-50% Total-50%

Examiners: There shall be two examiners for the conduct of practical and viva voce examination in each subject. Out of two examiners one shall be internal and one shall be external from outside the University/outside the state preferably from the institutions where MPH course is available.

Internal Assessment will be done in respective semester for a total of 50 marks for each paper/subject

Submission of Dissertation report: Two months before commencement of 2nd year theory Examinations.

Dissertation reports will be evaluated by two external examiners for 200 marks each and the average marks will be taken. Viva –voce for the dissertation will be done along with practicals of second year examinations.

Eligibility for examiners: Practical & viva will be conducted by one internal examiner and one external examiner with teaching eligibility of more than five years in the concerned discipline.