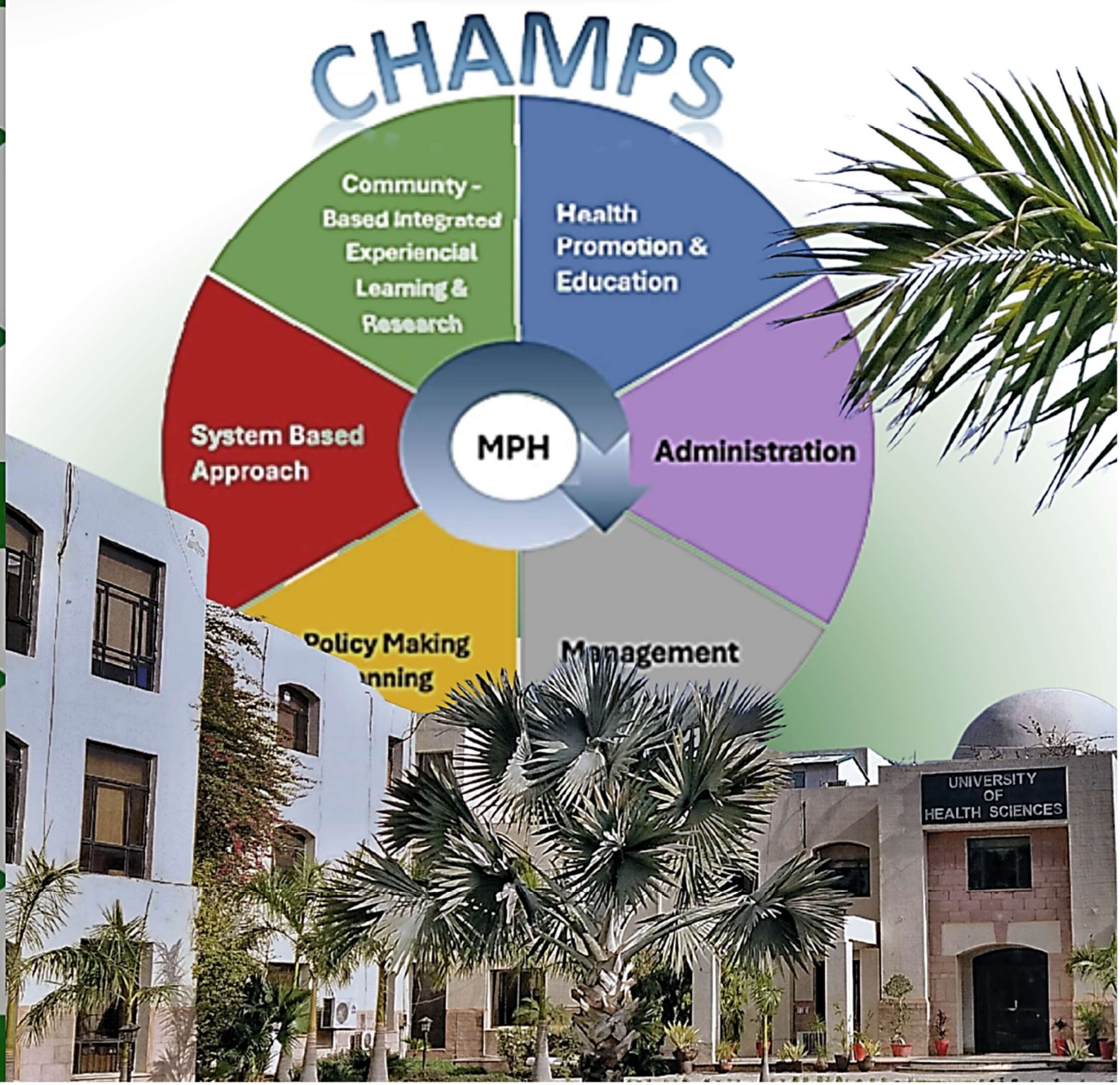
University of Health Sciences
Lahore

Curriculum for MASTERS IN PUBLIC HEALTH (MPH)

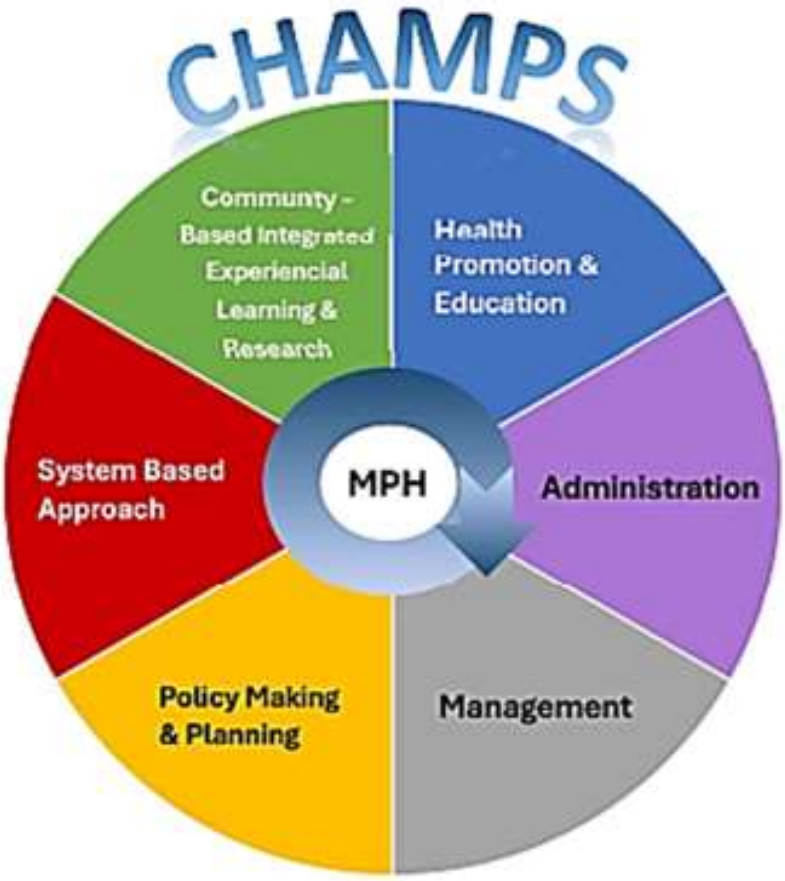



بسم الله الرحمن الرحيم

Curriculum

for

Masters in Public Health (MPH)



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Mission Statement

The mission of the University of Health Sciences is to contribute towards the improvement of health status of human population. This will be brought about through education, research and technical assistance for the development of health policies, translation of policies into feasible action plans and operationalization of these plans. The institute through its research and development program strives to acquire and disseminate knowledge regarding health system management, promotion of health, and control of communicable and non-communicable diseases and to become center of excellence for the development of public health at national and international level.

Program Introduction

The Master's in public health (MPH) program at University of Health Sciences, Lahore, is a two-year postgraduate program designed exclusively for medical doctors. The program is aligned with global standards including WHO, CEPH, and ASPPH, and emphasizes leadership, research, and community-based interventions.

The Masters of Public Health (MPH) program is designed to provide students with advanced knowledge and skills in the core disciplines of public health. This two-year graduate program prepares students for careers in public health practice, research, and leadership roles in various settings, including government agencies, non- profit organizations, healthcare institutions, and academic institutions. The program's curriculum is structured to ensure that students develop a comprehensive understanding of the principles and methods of public health, as well as the ability to apply this knowledge to address complex public health challenges. All regulations governing the Master's program shall strictly adhere to the rules and policies outlined by the University of Health Sciences (UHS), Lahore, as available on the official website www.uhs.edu.pk.

Program Outcomes of MPH (UHS)

1. Public Health Knowledge

i. Demonstrate mastery of core public health disciplines such as epidemiology, biostatistics, environmental health, health economics, and health policy.
ii. Apply public health theories and models to assess and resolve real-world health challenges.
iii. Analyze determinants of health from a population-based perspective.
iv. Interpret and integrate current public health literature and guidelines into practice.
v. Evaluate the effectiveness of health promotion and disease prevention interventions.

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2. Epidemiological and Analytical Skills

i. Design epidemiological studies using appropriate methodologies.
ii. Collect, manage, and analyze health data using statistical software (e.g., SPSS, STATA).
iii. Interpret results of epidemiologic investigations for decision-making.
iv. Assess disease trends, patterns, and causative factors through surveillance data.
v. Use analytical skills to support outbreak investigations and public health interventions.

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3. Health Systems Management

i. Assess and improve the performance of health systems using health system frameworks.
ii. Implement strategic planning and quality improvement initiatives in health service delivery.
iii. Apply health economics principles to optimize resource use and cost-effectiveness.
iv. Lead interdisciplinary teams to manage public health programs efficiently.
v. Monitor and evaluate health system performance for continuous improvement.

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4. Policy and Advocacy

i. Interpret and critique existing public health policies at various governance levels.
ii. Use data and evidence to influence public health policy and regulation.
iii. Develop policy briefs and advocacy strategies targeting key stakeholders.
iv. Advocate for health rights and equitable access to health services in vulnerable

communities.

v. Contribute to policy dialogue through stakeholder engagement and networking.

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5. Research Competency

i. Formulate relevant public health research questions and hypotheses.

ii. Develop research protocols with appropriate study designs and ethical considerations.

iii. Conduct data collection, cleaning, analysis, and interpretation using valid methods.

iv. Prepare and defend a thesis or capstone project based on original research.

v. Disseminate findings through academic publications and presentations.

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6. Communication Skills

i. Deliver oral presentations effectively to diverse audiences.

ii. Write scientific papers, reports, and policy briefs using clear, concise language.

iii. Use digital tools and platforms for health communication and awareness campaigns.

iv. Translate complex health data into accessible information for communities.

v. Facilitate community meetings, focus groups, and health education sessions.

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7. Community Engagement & Ethics

i. Conduct needs assessments and community mapping exercises.

ii. Engage stakeholders in the design and implementation of public health interventions.

iii. Evaluate community-based health programs using participatory methods.

iv. Maintain confidentiality and informed consent in all research and service activities.

v. Respect cultural norms, beliefs, and values in all interactions with community members.

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8. Global and Local Perspectives

i. Analyze global health trends and their implications on local health systems.

ii. Integrate the UN Sustainable Development Goals (SDGs) into program design and evaluation.

iii. Compare health systems and responses across countries and regions.

iv. Plan interventions that address global health issues like climate change and

pandemic preparedness.

v. Examine the health impact of migration, urbanization, and geopolitical conflicts.

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9. Professionalism and Leadership

i. Exhibit ethical behavior, accountability, and transparency in professional conduct.

ii. Lead and mentor public health teams to achieve common goals.

iii. Employ collaborative and interdisciplinary approaches to solve public health issues.

iv. Participate in continuous professional development activities.

v. Demonstrate resilience, adaptability, and decision-making in high-pressure scenarios.

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10. Public Health Laboratory and Surveillance (Optional Competency)

i. Understand principles of disease surveillance and outbreak detection systems.

ii. Apply basic techniques in diagnostic testing and interpretation of laboratory results.

iii. Adhere to biosafety and biosecurity guidelines in laboratory settings.

iv. Coordinate with public health laboratories for data reporting and response.

v. Support integrated disease surveillance and response (IDSR) initiatives during public health emergencies.

Program Organization and Structure:

The intensive curriculum emphasizes on basic public health sciences, essential managerial and analytical skills including project planning and evaluation, epidemiological investigations, health systems analysis and research, reproductive and child health, environmental and occupational health, disease control, and effective communication and leadership. It adopts a discipline-based methodology based on core competencies.

The 24-month curriculum is organized around a guiding framework, which first provides students with a conceptual overview of the diverse profession of public health and team-oriented approach to professional practice as well as a 2-month practicum (hands-on-training).

The courses are taught in a concurrent manner to build upon and integrate with each other. The first semester curriculum provides exposure to the basics of public health disciplines. The second semester curriculum provides advanced applied training in key methodological and programmatic disciplines which continues into the third semester, along with electives and finalization of their respective area of research. Elective courses are offered only during the third semester if minimally six participants enroll for a course. New credited courses will be subsequently introduced on a need-and-demand basis in the coming years.

In the fourth semester the students work on their synopsis followed by their dissertation writing. Students are encouraged to become involved in the institutional research wherein a Field Area will provide an opportunity for supervised, mentored practical experiences while addressing the health needs of Pakistan and its surrounding region.

The dissertation integrates public health knowledge, skills, and methods in a professionally and individually relevant practice context. The students then proceed to their respective workplaces/attachments/practicum and apply the skills that they learnt in the first three semesters. The immediate supervisor's/mentor's appraisal at the end of the semester is submitted to the Registration.

Teaching & Learning Methods:

i. Case-based discussions
ii. Field visits (e.g., DHQ hospitals, community health centers)
iii. Simulations (e.g., outbreak investigation, disaster response)
iv. Guest lectures by public health experts
v. Use of health data dashboards and statistical software (e.g., SPSS, Epi Info, R)

Assessment Framework:

i. Mid-term Examinations: 20%
ii. End-semester Examinations: 30%
iii. Assignments & Presentations: 15%
iv. Practical/Field Reports: 15%
v. Thesis & Viva: 20%

Clinical Public Health Skills:

i. Field-based epidemiological investigations
ii. Immunization program supervision
iii. Community health needs assessments
iv. Health camp design and implementation
v. Monitoring of national health programs (e.g., TB, Polio, HIV)

Research Component:

i. Impact evaluation of maternal health policies
ii. Antimicrobial resistance trends in primary care
iii. Cost-effectiveness of vaccination campaigns
iv. Urban sanitation and its correlation with diarrheal diseases

Program Duration, Credits and Medium of Instruction

The total program consists of 48 credits. One credit hour is equivalent to 16 hours of formal teaching/contact hours. English is the medium of instruction and examination for the MPH program.

1. Semester-wise Distribution:

The distribution of the core and elective courses in the three sessions is given in the following tables.

- **Semester I: Core Courses (Credits 14) C-S-1**

Principal of Public Health	**1**
Introduction to research (qualitative & quantitative)	**(1)+(1)**
Social and Behavioral Sciences in Public Health	**1**
Health Systems	**1**
Basic Epidemiology & Biostatistics	**3**
Information Technology & Artificial Intelligence In Public Health	**2**
Population Dynamics	**1**
Environmental, Climate Change and Disaster Management	**2**
Occupational Health & Safety	**1**

- **Semester II: All Core/Applied Courses (Credits 12) C-S-2**

Reproductive Health & Community-based Interventions	**1.5**
Maternal & Child Health programs and Interventions	**1.5**
Communicable and Non-communicable Disease Control	**2+1**
Health Education and Health Promotion	**0.5**
Health Systems Management (3rd)	**2.5**
Public Health Nutrition	**1**
Health Policy & Planning & Reforms	**2**

- **Semester III: Courses (Credits 12) C-S-3**

Advanced Epidemiology & Biostatistics	**3**
Applied Research Method & Ethics	**3**
Proposal writing	**2**
Hospital Management & Health Care Financing	**2**
Quality Management In Health Services	**2**

* Three out of six elective courses need to be taken.

- **Semester IV: Practicum & Elective Attachments* (Credits 12) C-S-4**

Courses	Credits
Practicum: Report writing & Presentation	**4**
Dissertation writing	**8**

Semester I

Semester I: Core Courses (Credits 14) C-S-1

Principles of Public Health	1
Introduction to research (qualitative & quantitative)	(1)+(1)
Social and Behavioral Sciences in Public Health	1
Health Systems	1
Basic Epidemiology & Biostatistics	3
Information Technology & Artificial Intelligence In Public Health	2
Population Dynamics	1
Environmental, Climate Change and Disaster Management	2
Occupational Health & Safety	1

C-1-S-1: PRINCIPLES of PUBLIC HEALTH Credit Hours: 1

Introduction:

The Foundations of Public Health course provides an essential introduction to the core principles, concepts, and practices that underpin the field of public health. This course is designed to equip students with a comprehensive understanding of the history, philosophy, and scope of public health and its critical role in improving population health and well-being.

Emphasizing a multidisciplinary approach, the course explores key domains such as epidemiology, biostatistics, environmental health, health promotion, global health, and health systems. Students will engage with contemporary public health challenges, understand the social determinants of health, and examine strategies used in disease prevention, health protection, and health equity promotion. By the end of the course, students will appreciate how public health impacts communities at local, national, and global levels and will be prepared to explore advanced topics in subsequent courses.

Learning Goals

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

1. Define the scope and purpose of public health and distinguish it from clinical health care.
2. Describe the core functions and essential services of public health systems.
3. Understand the historical development and philosophical foundations of public health practices.
4. Identify the key determinants of health, including social, economic, environmental, and behavioral factors.
5. Recognize the role of epidemiology and biostatistics in understanding and addressing population health issues.
6. Explain the importance of health promotion and disease prevention strategies in improving community health.
7. Analyze how policies, health systems, and global trends influence public health outcomes.
8. Demonstrate an awareness of health equity, ethics, and cultural sensitivity in public health practice.
9. Explore the impact of global issues, such as climate change and pandemics, on public health.
10. Develop critical thinking and communication skills to engage in public health discussions and initiatives.

Course Objective:

1. Foundation of Public Health Knowledge:

i. Understand the evolution of public health, recognizing key milestones and contributors in the development of public health as a field of study and practice.

Conceptual Understanding of Health and Disease:

i. Define and discuss the concepts of health and disease, exploring the spectrum of health conditions.
ii. Analyze the Iceberg of Disease model, emphasizing the importance of recognizing both visible and hidden aspects of health issues.
iii. Identify and explain social determinants of health, recognizing their influence on individual and community well-being.
iv. Evaluate indicators of health, including the Physical Quality of Life Index (PQLI), Disability Adjusted Life Year (DALY), and Quality Adjusted Life Years (QALY).

Indicators of Health and Disease:

i. Differentiating between mortality and morbidity as key indicators of population health
ii. Analyze the Sullivan Index and healthcare delivery indicators in assessing the health status of populations.
iii. Evaluate patterns of healthcare utilization as indicators of access and health-seeking behavior.

Models of Health Promotion:

i. Examine various models of health promotion, including the Caplan and Holland model, Beattie model, Tones and Tilford model, and Tannahill model.
ii. Apply these models to understand the principles and strategies involved in health promotion efforts.

Overview of Health Programs and International Health:

i. Differentiate between horizontal and vertical health programs, understanding their strengths and limitations.
ii. Evaluate major health programs in Pakistan, including the WHO EPI program, Polio Eradication program, Malaria Control and Elimination program, HIV/AIDS Control program, Dengue Control program, TB Control program, and IRMNCH program.
iii. Explore key international health organizations, such as WHO, UNICEF, UNHCR, and understand their roles in addressing global health challenges

Learning Outcome:

1. **Historical and Conceptual Foundations:**
   i. Demonstrate a comprehensive understanding of the evolution of public health and its role in shaping public health practices.

Analyze key concepts and theories that have contributed to the development of public health as a distinct discipline. Health and Disease Concepts:

i. Define and critically examine the concept of health, considering its multidimensional nature.
ii. Explain the spectrum of health and disease, incorporating the Iceberg of Disease model to recognize both visible and hidden health issues.
iii. Evaluate the influence of social determinants on health and recognize their significance in population health.

Indicators of Health and Disease:

i. Analyze and interpret indicators of health, including mortality, morbidity, Sullivan index, healthcare delivery indicators, and healthcare utilization.
ii. Apply concepts like the Physical Quality of Life Index (PQLI), Disability Adjusted Life Year (DALY), and Quality Adjusted Life Years (QALY) to assess population health.

Health Promotion and Prevention:

i. Critically assess models of health promotion, including the Caplan and Holland model, Beattie model, Tones and Tilford model, and Tannahill model.
ii. Understand and apply the principles of disease prevention, including the levels of prevention, to address health challenges at various stages.

Global and Local Health Programs:

i. Evaluate major national and international health programs, distinguishing between horizontal and vertical approaches.
ii. Analyze the impact of specific health programs in Pakistan, such as the WHO EPI program, Polio Eradication program, Malaria Control and Elimination program,
iii. HIV/AIDS Control program, Dengue Control program, TB Control program, and IRMNCH program.

Course Contents:

1. Concepts and development of public health
2. History of public health
3. Impact of globalization on public health
4. Principles of public health
5. Functions of public health
6. Healthcare systems around the world
7. Health and disease
    - Concept, Definition of health and spectrum of health and disease
    - Iceberg of Disease
    - Determinants of health
    - Indicators of health
    - Physical quality of life index
    - Disability adjusted life year
    - Quality adjusted life years
    - Elements of health and health promotion
    - Community health and empowerment
    - Definition of disease, illness, impairment, disability and handicap
8. Indicators of health
    - Mortality
    - Morbidity

- Sullivan index
- Healthcare delivery indicators
- Healthcare utilization

9. Health promotion
    - Caplan and Holland model
    - Beattie model
    - Tones and Tilford model
    - Tannahill model
10. Theoretical foundations of trans disciplinary approach in public health research and practice
11. Prevention of disease and levels of prevention
12. Burden of disease; national and global
13. Health programs: Horizontal and vertical
14. Ethics in public health
15. Population health, population dynamics and measure of population
16. Health programs in Pakistan
    - WHO EPI program
    - Polio eradication program
    - Malaria control and elimination program
    - HIV/AIDS control program
    - Dengue control program
    - TB control program
    - IRMNCH program

17. International health
    - WHO, UNICEF, UNHCR
18. Sustainable development goalsHealth policy and planning
    - Health oriented preventive education
    - Health and education development organization
    - Pakistan red crescent society
    - World bank projects
    - Role of IIPH
19. Brief overview of current public health problems
    - Health, education, sanitation, pollution, communicable and non-communicable disease overview
20. Brief overview of global health problems
    - Pandemics, war, pollution, communicable and non-communicable diseases
21. Migration and health
    - Definition of migration and migrants
    - Concepts of migration
    - Local and global effects of migration
    - Challenges of migration(Host and migrants)
    - Health problems of migrants
    - Addressing the problems of migration and migrants

Teaching Methodology:

The methodology used ranges from didactic and participative lectures, discussions to practical problem-solving exercise

Recommended Reading:

1. Introduction to public health. Mary Louise Fleming, Elizabeth Parker. (4th edition)
2. Oxford Textbook of Public Health. Roger Detels, Robert Beaglehole, Mary Ann Lansang, Martin Gulliford.
3. PARK'S Textbook of Preventive and Social Medicine. (27th edition)
4. Public Health and Preventive Medicine. Maxcy-Rosenau-Last. (16th edition
5. Berryman, A. A. (2020). *Principles of Population Dynamics and Their Application*. United Kingdom: CRC Press.
6. Livi Bacci, M. (2017). *A Concise History of World Population*. United Kingdom: Wiley.
7. Tuljapurkar, S. (2013). Population *Dynamics in Variable Environments.* Germany: Springer Berlin Heidelberg.
8. Haupt, A., & Kane, T. T. (1997). *Population Handbook. Washington, DC: Population Reference Bureau.* Available from:URL: http://www.prb.org/pdf/PopHandbook_Eng.pdf

Palmore, J. A., & Gardner, R. W. (1983). *Measuring Mortality, Fertility, and Natural Increase: A Self-teaching Guide to Elementary Measures.* Honolulu: East-West Population Institute, East-West Center

C-2-S-1: Introduction to Research

Course Credit: 1+1

Introduction:

This includes the learning of skills of critically assessing the published articles in medical journals based on the knowledge acquired earlier. Applying the knowledge of epidemiology and biostatistics, population dynamics, qualitative research methods, computer skills and health systems analysis, the student will learn the development of a research question, giving essential background, making statements for objectives, data collection, analysis applying statistical methods using the computer skills and present their readings and research projects for the third session.

Learning Goal:

The goal of this course is to create a critical mass of trained persons well-oriented in writing a research proposals for the dissertations and funding purposes. It will also enable the health professionals to critically comprehend the concepts and at the same time apply the epidemiological and statistical methods to develop a research protocol making use of computer statistical softwares and information technology.

Learning Objectives:

The learning issues relating to the above objectives are as follows:

1. The critical analysis of the published scientific paper will be used as baseline to start with the concept of writing a proposal to enable the students to identify the scientific requirements of medical writing and the various components of the paper.
2. (This will be critical reading of a published paper in context with the background, objectives, aims, study designs, data collection tool and their validity, data presentation and interpretation, in terms of discussion and conclusions. Statistical methods will

be assessed for their applications and validity. The citation and listing of references will also be examined using the guidelines for critical assessment of scientific papers).

- The definitions of research and its uses and advantages will be highlighted in context with its importance in health and disease.
- The selection and prioritizing topic for research demands some underlying reasoning which will be dealt with in this section requiring guidelines to select a topic.

3. Hands-on-training of the students will be made possible in searching for the relevant literature using hand and web search.
   - Providing a background to the study will be worked at through exercises using several examples.
4. Formulation of objectives needs clarity of logical thinking which can focus on the scientific principals and, at the same time, covering the language issues.
5. Formulation of hypothesis is critical in terms of stating them in measurable terms.
6. Through definitions of objectives and hypothesis, the identification of variables and their types will be worked at.
7. Once the objectives and variables are identified, the design of the study will be identified based on the prior knowledge of basics in epidemiology.
8. Sampling techniques employed will be qualified appropriate to the objectives and the study designs. Probability and non-probability techniques will be applied on different scenario to appropriate their use in research.
9. Sample size estimation based on objectives and study designs will be done using various statistical applications.
10. Construction of Proforma and questionnaire appropriate to the study objectives and variables.
    - Validity of the measurements will be discussed for the documented variables.
    - Importance of self- and interviewer administered questionnaire.

- Pre-testing the methodology of data collection

11. Outlining of the plan for data analysis will be carried out constructing dummy tables and identifying appropriate statistical analysis.
12. Preparing of the work plan using the pattern of a Gantt chart.
13. Preparing budget and its justification for a proposal when seeking funding.
14. Writing the title of the study topic to include the study design, variables and statistical analysis.
15. Abstract writing will be done according to different standards.
16. Presentation of the project will be the final step

Contents:

Following are the contents of the course:

1. Principles of critical reading of a scientific paper
2. Definition of research
3. Importance of research in public health
4. Selection of topic for research
5. Literature Search using internet and library
6. Preparing the background for the proposal writing.
7. Parts of proposal writing.
8. Study design, sampling techniques, and inclusion and exclusion criteria.
9. Methodology
10. Choosing the statistical techniques.
11. Reference writing
12. Abstract writing

Teaching Methodology:

Interactive discussions, exercises, group discussions/work and hands-on training

Students' Evaluation:

i. Formative (20%)

Ongoing assessment through class participation and class exercises

ii. Summative Assessment (80%)

Summative assessment consist of: MCQ

Recommended Reading:

- Research Methods in Health by Ann Bowling
- Qualitative Research in Health Care by Pope & Mays
- WHO Operational Research

2. C-3-S-1 : SOCIAL AND BEHAVIOURAL SCIENCES IN PUBLIC HEALTH (CREDIT HOURS:)

Introduction:

Psycho-social-cultural and political structures of society affect different spheres of public health, including the type and distribution of illness and disease. They also determine modes of intervention used in the prevention of illness, disease, and injury as well as the organization of health services at the national, international, and community levels.

Learning Goal:

The goal of this course is to introduce the MPH participants to the various facets of the public health in light of the social determinants of health. The main emphasis is on a holistic view keeping under consideration the social, cultural, ecological, political and economic factors and their mutual interaction that influences the occurrence of disease and its management at individual and community level.

Learning Objectives:

By end of the course the participants should be able to:

1. Explain key concepts in the social and behavioural aspects of public health: culture, race/ethnicity, gender, poverty/disparities,
2. Describe the factors related to behavior change, community, organizational climate and family structure
3. Demonstrate understanding of the social determinants of health
4. Describe how social determinants influence population health
5. Critically assess the relevance of ethics in public health

Contents:

The following areas will be covered during the course:

1. Role of Social Sciences in Public Health
2. Equity in health care
3. Politics of Health
4. Gender and Health
5. Socio-cultural factors and their impact on health
6. Economics and Health
7. Health impact of rapid economic change
8. Role of Civil Society in Health Care
9. Community participation in Health Care
10. Ethics in Public Health
11. Public Health and Law
12. Social Policy and Health of Population

Teaching Methodology:

Teaching will be carried out in the form of didactic and interactive lectures and discussions as well as individual assignments.

Recommended Reading:

Health Behavior: Theory, Research and Practice by Glanz et al.

Promoting Health: The Primary Health Care Approach by Talbot and Verrinder CDC Health Communication Resources

C-4-S-1 HEALTH SYSTEMS CREDIT HOURS: 1

Introduction:

Health Systems Analysis is application of the systems approach in health. It is an approach to examine all aspects of a Health System in a systematic and organized way to learn about its strengths and find out ways to cover the gaps.

Learning Goal:

The goal of this course is to enhance the participants' comprehension of the basic concepts of the health system at micro and macro level, for the purpose of ultimately improving health service delivery in Pakistan and in other countries

Learning Objectives:

At the end of the course students will be able to:

1. Understand the various concepts of Health Systems
2. Understand and enlist all essential components of the Health Systems Model
3. Understand and practice the steps of Health Systems Analysis
4. Identify indicators for each component of Health Systems Model
5. Develop a tool for Health Systems Analysis
6. Conduct Health Systems Analysis in the field
7. Analyze and interpret the findings from data collected through the Health Systems Analysis Tool

Contents:

The following areas will be covered during the course:

1. Definitions of health input, output and outcomes
2. Health System: Conceptual Frameworks
3. Health System: Terms and Concepts
4. Systems Approach
5. Health Indicators and their use
6. Situation Analysis Approach
7. Instrument for Health Systems Analysis
8. Macro Health System: WHO model
9. Health Management Information System
10. Field Visits for data collection(applied system analysis)
11. Health system functions
12. Health system outcomes
13. Primary Health Care
14. Linking the Micro and Macro Health models

Teaching Methodology:

Lectures, discussions, group work, presentations, assignments and supervised field trip

3. **C-5.1-S-1: Basic Epidemiology**

   CREDIT HOURS: 1

Introduction:

Epidemiology is an essential discipline for public health practice. The importance of this science is demonstrated by the inclusion of epidemiology courses in most medical, nursing and public health curricula. Basic Epidemiology lays stress on the basic epidemiological principles and their application to research methodology developing on the understanding of the fundamental principles and on the development of the practical skills and concepts rather than on mathematical calculations.

This core course is offered in the first session of the MPH programme. This is particularly linked with the courses on Health Informatics and Computer Applications in Public Health.

Learning Goal:

The goal of this course is to enable health professionals to understand the concepts and apply the epidemiological and statistical methods to design, conduct, analyze and apply interventions for evaluation, making use of computer statistical software and information technology.

Learning Objectives:

By the end of the course, the participants must be able to:

1. Define Epidemiology and its uses in Public Health and Research
   - Importance of epidemiological investigations
   - Developments in modern Epidemiology
   - Uses of Epidemiology in health and disease
2. Apply and design strategies commonly used for epidemiological studies
   - Describe Descriptive and Analytical studies, the principals of various

study designs with their merits and main outcome measures highlighted for each study design: case report and case series (description), cross-sectional studies(prevalence), cohort studies (incidence, relative risks), case control studies (Odds Ratio), experimental studies/clinical trials, intervention studies

- Describe each study design with its uses, strengths and limitations

3. Assess the burden of disease using the measures of disease frequency e.g.:
   - Define rates, ratios, proportions in relation to vital statistics. Calculate incidence, prevalence, morbidity and mortality rates in human populations.
   - Apply these measures in defining population dynamics
4. Describe the validity and reliability of a study design internal and external validity and its measure, Hawthorne effect etc. Reliability and its measures.
5. Investigate association in terms of strength of association and causality. Make 2x2 tables. Calculate Relative risk, Attributable risk, population attributable risk percent and population attributable risk fraction. Interpret these measures.
6. Identify Risk and risk factors: definition and characteristics. Define Causality and judge cause-effect relationship:
   - Examine the epidemiological evidence
   - Examine the statistical evidence
   - Examine biological plausibility
7. Drawing Inference from study results (alternative explanations):
   - Define confounding, its characteristics and effects on the results and how to control for it.
   - Define Bias, its characteristics and effects on results and how to control for it.

- Define Chance, its characteristics and effects on results and how to control for it.

8. Apply screening in disease control:
    - Define Screening, uses, screening tests, their validity and yield discussing the bias associated with Screening.

Contents:

The following are the contents of the course:

1. Definition of Epidemiology
2. Importance of Epidemiology
3. Types of study designs: their importance, uses and limitations.
4. Outcome measures for each study design e.g. Relative risk, Odds ratio etc.
5. Causality and association
6. Inferential Epidemiology
7. Validity and Reliability
8. Measuring the Disease burden: Rates, Ratios, Incidence, Prevalence
9. Role of Chance, Confounding and Bias in interpretations.
10. Screening in disease control.

Recommended Reading:

Epidemiology: Beyond the Basics by Moyses Szklo & Javier Nieto

Modern Epidemiology by Kenneth Rothman et al.

CDC Field Epidemiology Manual (https://www.cdc.gov/eis

4. C-5.2-S-1: Basic Biostatistics
CREDIT HOURS: 1

Introduction:

This discipline plays a fundamental role to prepare the students to apply basic statistical methods in designing the scientific studies, data collection, data analysis and draw inferences. This will introduce essential statistical tools to the students of Public Health to conduct and interpret quality research.

Learning Goals:

The following are the learning goals of this course:

1. Introduce important statistical concepts to the students of Public Health to solve everyday problems
2. To prepare the students to design studies/trials including the sample size, sampling techniques, data analysis, tests of significance etc.
3. To prepare the student to interpret collected data and draw inferences.

Learning Objectives:

The following are the objectives of the course:

1. Define and give the rationale for statistics in medicine
2. Define variables and their types:
   - What are variables, different type of variables, classify variables into qualitative, quantitative, discrete and continuous variables
   - Define dependent and independent variables
   - Breakdown the range of a series of quantitative measurements into intervals and specify which measurement belongs to which intervals.
3. Define the data types and the scales of measurements
   - Continuous and discrete data sets
   - Ordinal and nominal data sets
   - Interval scales
   - Composite scales

4. Interpret a given data: Apply descriptive statistics for continuous variables in terms of:

- Measures of central tendency: Calculate the mean, median and mode and interpret them.
- Measures of dispersion: variance, standard deviation, coefficient of variation
- Measures of shapes: regarding the distribution of the data sets

5. Apply frequency distribution to a given data and its interpretation. What are percentiles, their uses and limitations in a dataset
6. Apply the concepts of probability. Recognize the algebraic notations used in statistics to differentiate between parameters and statistics.
7. Define Probability, types of probability with examples.
8. Describe the common probability distributions especially Normal and Binomial distributions.

- List the descriptive properties of a normal distribution with mean μ and standard deviation σ
- Use tables of normal distribution function to estimate the area under a normal curve with mean μ and σ for one and between 2 values of the variable.
- Define Binomial distribution: use the normal approximation to the binomial probabilities and use of continuity correction to improve the estimates.

9. Describe Population and its relation to sample:

10. Define Sampling and its techniques:

- Distinguish between probability and non-probability sampling
- Define various types of probability and non-probability sampling
- Why sampling errors arise in a sample estimate of a parameter.
- Describe the sampling distributions of a mean and a proportion.
- Interpret and explain quantitatively the effect of the standard deviation and sample size on the sampling distributions

11. Calculate the sampling errors; calculate the standard error of a mean and a proportion and its interpretation.

12. Calculate and interpret confidence intervals for a parameter. Explain why it is necessary to calculate confidence interval in a data
13. Apply concepts of comparing data (Inferential statistics):

- Learn about the basics of hypothesis development
- What is a Null hypothesis and Alternate Hypothesis
- Describe the rationale of a significance test
- Define Alpha and Beta errors
- Calculate the Power of a study

14. Apply various tests of significance: their rationale and use.
15. Calculate Confidence Intervals
16. Explain the meaning of 'p' in statistical terms and its interpretation.
17. Apply the steps of Hypothesis testing

- Choosing an appropriate test of significance
- Use the tests of significance for parametric data: for a single mean, for two means of unpaired observations, two means of paired observations, three or more independent means (ANOVA).
- Use the tests of significance for categorical data: for one proportion, two independent proportions, two paired proportions, several proportions, analyzing frequency tables (2x2, 2xk tables), large tables with ordered categories.

18. Investigate the association between two continuous variables: using a scatter gram to:

- Identify dependent and independent variables
- Apply correlation–calculate correlation coefficients,
- Interpretation and presentation of correlation.

19. Investigate the relationship of two continuous variables using regression, calculating linear regression of y on x and draw line of regression, interpreting and presenting regression.

- When to choose –regression or correlat

Contents:

The following are the contents of the course:

1. Introduction to Biostatistics

2. Types of statistical applications
3. Variables
4. Scales of measurements
5. Descriptive Statistics
6. Measures of central tendencies
7. Measures of variability
8. Measures of shapes
9. Probability
10. Probability Distributions: Normal, Poisson, Binomial
11. Sampling techniques, sampling errors/ Confidence Intervals
12. Concepts of analytical statistics: Hypothesis testing:
13. Alpha and Beta errors
14. Tests of Significance: Normal test, t test, Chi square test etc.
15. Correlation
16. Regression
17. Sampling and various sampling techniques

Data presentation: Figures, graphs, tables Teaching Methodology:

Interactive (scenario-based learning) and other teaching tools, discussions and practical examples (exercise) lectures

Recommended Reading:

Basic Biostatistics by B. Burt Gerstman
Biostatistics: A Foundation for Analysis in the Health Sciences by Wayne W. Daniel
SPSS and Epi Info Manual

C-6-S-1 : Information Technology & Artificial Intelligence In Public Health.

CREDIT HOURS: 2

COURSE CONTENT:

Course Objective:

The overall objective of the course is to enable the participants to understand the fundamentals of the use of technology in health data management, as well as get a brief introduction to some of the commonly uses of digital technologies in public and clinical healthcare.

Learning Outcome:

At the end of the course, the student should be able to:

- Understand the basics of health information systems, electronic health records (EHRs), health information exchange (HIE), and the importance of interoperability in healthcare data management.
- Evaluate Healthcare Data Management Practices: Assess data collection methods, storage infrastructure, privacy protocols, security measures, and compliance with healthcare regulations such as HIPAA.
- Analyze Clinical Decision Support Systems: Examine the role and functionality of data-driven tools that aid healthcare providers in decision-making and improving patient outcomes.

- To Explore Public Health Applications of data science in health such as population health trends, disease surveillance, and epidemiology using data science and informatics methodologies.
- Learn about Emerging Technologies in Healthcare and explore the impact of emerging technologies such as wearable devices, telemedicine, AI-driven diagnostics, and their potential applications in healthcare settings.
- Understand how to integrate Health Informatics and Data Science: Synthesize knowledge from both fields to propose innovative solutions for improving healthcare delivery, patient care, and system efficiencies.
- Recognize and be prepared for the future of artificial intelligence in healthcare via best practices, feedback loops, and contextually intelligent agents (CIAs)
- Understand what is big data and how is it similar/different from business intelligence or analytics, the basics of what can you do with this data? Introduction to types of analytics applicable to healthcare bigdata.

Course Outline:

1. Basics of Health Informatics including understanding electronic health records (EHRs), health information exchange (HIE), HMIS
- The significance of interoperability in healthcare data systems
- Identify opportunities for healthcare informatics interventions.
2. Introduction to use of Bigdata
- The use of big data analytics in analyzing vast amounts of healthcare data to derive insights, predict disease outbreaks, identify trends, and personalize treatment plans
- Use of Bigdata for population health management and clinical decision-making.

- Bigdata categories, Data elements, Data sets, Indicators and organisational units

3. Introduction to DHIS -2

- History of health information systems in Pakistan
- DHIS 2 data entry app, web and mobile
- Applications in Public Health: Analyzing population health trends, disease surveillance, and epidemiology.

4. Introduction to applied machine learning and artificial intelligence

- Identify problems healthcare providers face that machine learning can solve
- Analyze how AI affects patient care safety, quality, and research
- Relate AI to the science, practice, and business of medicine
- Apply the building blocks of AI to help you innovate and understand emerging technologies
- Future of artificial intelligence in healthcare, best practices, feedback loops, and introduction to contextually intelligent agents (CIAs)

5. Introduction to Digital Health

- Emerging Technologies: Exploring the impact of innovations like wearable devices, telemedicine, and AI-driven diagnostics on healthcare delivery.
- Use of mobile applications and digital platforms to facilitate patient engagement, medication adherence, mental health support, and lifestyle management.
- Electronic data capture applications, introduction, use and functions. E-g REDCap

6. Ethical considerations in health data science

- Challenges and Ethical Considerations including regulatory requirements governing the use, handling, and sharing of healthcare data

- Addressing challenges such as data quality, bias, ethical dilemmas, and the responsible use of patient data.

Recommended Books:

1. Salvatore G.Volpe, Health Informatics Multidisciplinary Approaches for Current and Future Professionals, First edition, Taylor and Francis 2022.
2. Prashant Natarajan, John C. Frenzel, Detlev H. Smaltz, Demystifying Big Data and Machine Learning for Healthcare, Taylor & Francis, 2017
3. Edward W.Marx, Paddy Padmanabhan, Healthcare Digital Transformation, First edition, CBC Press, Productivity Press 2020
4. Susan Houston, The Project Manager's Guide to Health Information Technology Implementation, Third edition, Routledge Taylor and Francis 2022.
5. Braa, Jørn; Humberto Muquing (2007). "Building collaborative networks in Africa on health information systems and open source software development — Experiences from the HISP/BEANISH network". CiteSeerX 10.1.1.131.8950
6. DHIS 2, University of Oslo, https://dhis2.org/about/
7. Project Research Electronic Data Capture, REDCap, https://www.project-redcap.org
8. The Lancet Digital Health. Digital technologies: a new determinant of health. Lancet Digit Health. 2021 Nov;3(11):e684. doi: 10.1016/S2589-7500(21)00238-7. PMID: 34711372
9. Iyamu I, Xu AXT, Gómez-Ramírez O, Ablona A, Chang HJ, Mckee G, Gilbert M. Defining Digital Public Health and the Role of Digitization, Digitalization, and Digital Transformation: Scoping Review. JMIR Public Health Surveill. 2021 Nov 26;7(11):e30399. doi: 10.2196/30399. PMID: 34842555; PMCID: PMC8665390.
10. World Health Organization . WHO Guideline: Recommendations on Digital Interventions for Health Systems Strengthening. Geneva, Switzerland: WHO; 2019.
    pp. 1–2. - PubMed
11. Goldstein BA, et al. Opportunities and challenges in developing risk prediction models with electronic health records data: a systematic review. J Am Med Inform Assoc. 2017;24(1):198–208. doi: 10.1093/jamia/ocw042. - DOI - PMC - PubMed

5. C-7-S-1: Population Dynamics

Course Credits:1

Introduction:

Pakistan is currently going through demographic transition. This transition and the ultimate effects of the same are needed to be understood and appreciated in terms of policy, management and research. Not all health managers, policy makers and researchers know various static and dynamic measures of populations. The country's annual growth rate implies effect on its economy and resources. Poverty, population growth and disease is the vicious cycle that has to be addressed from a local perspective. Changing population pyramids of the developed world also emphasize to look into a twenty year time for our interventions in future for health.

Learning Goal:

The overall goal of this course is to impart basic knowledge and bring a change in attitude of the participants towards major issues in population dynamics to enable them to do research on some of these issues.

Learning Objectives:

By the end of the course, the participants must be able to:

1. Define demography, its tools and vital statistics.
2. Describe demographic transition and historical forces leading to the current situation
3. Explain population pyramid and different profiles of population pyramids
4. Interpret and compute different mortality and morbidity related measures
5. Compute and interpret different fertility related measures such as Crude

Birth

Rate, Total Fertility Rate, Age Specific Fertility Rate, Net Reproduction Rate and Doubling Time

6. Discuss the impact of population growth on development and health issues
7. Demonstrate knowledge and understanding of scientific, evidence based approaches to the study of population issues.
8. Identify causes and consequences of population change and relate these to underlying population dynamics.
9. Demonstrate knowledge and understanding of demographic behavior in social and policy context

Contents:

The contents of the course are:

1. Introduction to Population dynamics: Various static and dynamic measures of populations
2. Population and Health: An introduction to Epidemiology
3. Visit to Federal Bureau of Statistics
4. Demographic perspective and basic demographic equations
5. Sources of data including census
6. Salient features of population pyramids
7. Concepts and theories of demographic transition
8. World population growth patterns and population momentum
9. Mortality & measures of mortality
10. Global burden of diseases
11. Fertility, natural increase and reproduction rates
12. Characteristics of Pakistani population and other countries

13. Migration and urbanization

14. Population, Poverty and Politics

15. Islam and family planning

16. Population growth and aging

17. Population Policy

Teaching Methodology:

1. Didactic class room instruction on multimedia and white board
2. Interactive discussions and experience exchange
3. Panel discussion
4. Assignment: Library/Internet
5. Role plays

Students' Evaluation:

Formative (20%)

Ongoing assessment through class participation and class exercises

Summative Assessment (80%)

Summative assessment consist of: MCQs and Short essay questions

6. C-8-S-1 : Environmental Health, Climate change and Disaster Management

CREDIT HOURS :2

COURSE CONTENT:

Introduction:

The MPH programme is targeted at enabling the participants to use applied research tools and techniques applying to the study of the environment in relation to health. The course presents concepts, principles, and applications of the main natural and social science disciplines that form the basis of environmental health and describes how these disciplines and their practitioners interact in the environmental health paradigm. The course examines health issues, scientific understanding of causes, and possible future approaches to control of the major emerging environmental health problems in industrialized and developing countries.

Learning Goal:

The overall goal of the course is to enable the participants to identify and describe the important current and emerging environmental problems that pose risk to public health and apply the multidisciplinary environmental health approach to their solution.

Learning Objectives:

By the end of the course the participants should be able to:

1. Describe the core issues in Environmental Health
2. Define the major sources and types of environmental agents
3. Identify the carriers or vectors that promote the transfer of these agents from the environment to the human

4. Describe how these agents interact with biological systems, and the mechanisms by which they exert adverse health effects
5. Describe the existing situations and remedies in developing countries
6. Identify and define the steps in the risk-assessment and risk-management processes
7. Describe the sources, pathways of exposure and methods of control of the principal physical, chemical, biologic and psychosocial hazards that impact human health in ambient, indoor and occupational environments.
8. Explain the processes associated with the translation of scientific and health data into public health policy and environmental law.
9. Identify and describe important current and emerging environmental problems that pose a risk to public health

Contents:

The following areas will be covered during the course:

Course Contents

During this course, the following course contents will be covered in the specific environmental health areas;

General Contents

1. Introduction to Environmental Health Issues
2. Environmental Health Issues of Pakistan
3. Human Impacts on Environment
4. Environmental Impacts on Human Health
5. Sanitation Status and Options in Pakistan

A. Water Pollution

1. Surface and Groundwater Resources of Pakistan

2. Drinking Water Supply Sources
3. Drinking Water Quality Situation in Pakistan
4. Pesticides and Fertilizers
5. Arsenic, Fluoride and Nitrate contamination in Drinking Waters
6. Water Born Diseases in Pakistan
7. Water Supply Agencies, their Capacity and Performance
8. Present Drinking Water Treatment Practices
9. Waste Water Availability and its Treatment

B. Air Pollution

1. Air Pollution Sources
2. Air Quality Monitoring Network in Pakistan
3. Present Status of Air Pollution in Pakistan
4. Health Effects of Air Pollution
5. Air Pollution Control Devices
6. Legal Regulations

C. Noise Pollution

1. Sources of Noise Pollution
2. Effect of Noise Pollution on Health and Behavior
3. Noise Mitigation
4. Legal Requirements

D. Solid and Hazardous Waste Management

5. Solid Waste Sources and Quantitative Estimates
6. Methods of Disposal

7. Waste Handling and Transport
8. Waste Management Concepts
9. Technologies
10. Hazardous Waste Generation
11. Hazardous Waste Management
12. Hazardous Waste Storage
13. Common Hazardous Waste incineration Facilities

E. Environmental Impact Assessment (EIA)

1. Objectives of EIA
2. Types of EIA
3. Basic EIA Principals
4. Types of Environmental Impacts
5. Risk Assessment
6. Environmental Management Plan
7. Stakeholders Roles and Responsibilities

F. Climate Change and Its Effect on Health

1. Pakistan's Vulnerability to Climate Change
2. Effect on Floods and Droughts
3. Human Health

G. Environment Policy and Law

1. Air Quality and Noise
2. Waste Management
3. Water Supply and Management

4. Forestry
5. Poverty and Environment
6. Health and Environment
7. Natural Disaster Management
8. Legislation and Regulatory Framework

H. Healthy Cities and Villages

Teaching Methodology:

1. Didactic inactive class room instruction primarily through multimedia presentations

2. Practical field work with demonstration on class room-based instructions Group exercises and roleplays

Recommended Reading:

Essentials of Environmental Health by Robert H. Friis
Environmental Health: From Global to Local by Howard Frumkin

7. C-9-S-1: Occupational Health & Safety Health & Safety

CREDIT HOURS:1

Introduction:

Pakistan is basically an agricultural country with a population of 150 million, 65% of which lives in rural areas. Our National workforce is distributed both in formal and informal sectors. Globally, it is evident that about 45% of the world's population and 58% of the population over 10 years of age, belong to the global workforce. Recent occupational health data indicates that 40-50% of the world's population is exposed to hazardous condition in the workplace. Over 120 million occupational accidents occur worldwide each year, with 200,000 fatalities. The magnitude of the occupational diseases and injuries is not less than the reportable diseases. In Pakistan, there is a dire need to address the occupational health and safety issues as we are rapidly progressing to a middle income country and the industrialization and increase in working force demands more emphasis and concrete actions taken for the health and safety of the occupational group of both formal and informal sectors.

Learning Goal:

The overall goal of the course is to improve the capacity of health managers in occupational health in terms of their knowledge, attitude and skills.

Learning Objectives:

By the end of the course, the participants will be able to:

1. Define occupational health that encompasses the main aspects of problem-solving typically faced by health managers;
2. Define and describe essential concepts, principles, methods and terms in occupational health;

3. Apply certain techniques in the resolution of selected occupational health issues and
4. Describe basic methods of quantitative and qualitative analysis being used by health managers in occupational health.

Contents:

The following areas will be covered during the course:

1. Workplace and Health
2. Scope of Occupational Health and Safety
3. Occupational Health Issues in Low-income Countries
4. Industrial Hygiene
5. Anticipation
6. Recognition
7. Evaluation
8. Control
9. Clinical Occupational and Environmental Medicine
10. Legal and Regulatory Issues
11. Workplace and Health
12. Scope of Occupational Health and Safety
13. Occupational Health Issues in Low-income Countries
14. Industrial Hygiene
15. Anticipation
16. Recognition
17. Evaluation
18. Control
19. Clinical Occupational and Environmental Medicine
20. Legal and Regulatory Issues
21. Labour Laws

Teaching Methodology:

Lectures, discussions, walk through examination of the industries, panel discussion and role plays and assignments.

Students' Evaluation:

Formative (20%)

Ongoing assessment through class participation and class exercises

Summative Assessment (80%)

Summative assessment consist of: MCQs and Short essay question09. Social and Behavioural Sciences in Public Health

Recommended Readings:

1. Jeyaratnam J, Koh D (eds.). Textbook of occupational medicine practice. Singapore: World Scientific Publishing Co; 1996.
2. Sellers CC. Hazards of the job: from industrial disease to environmental health science. Chapel Hill: University of North Carolina Press; 1997.
3. Reich MR, Okubo T (eds.). Protecting workers' health in the third world: national and international strategies. New York, NY: Auburn House.
4. Merchant JA, Boehlecke BA, Taylor G, Pickett-Harner M (eds.). Occupational respiratory diseases. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, DHHS (NIOSH); 1986. Publication No. 86-102.
5. ILO/WHO manuals on workplace safety and exposure

SEMESTER 2

Semester II: All Core/Applied Courses (Credits 12) C-S-2

Reproductive Health & Community-based Interventions	1.5
Maternal & Child Health programs and Interventions	1.5
Communicable and Non-communicable Disease Control	2+1
Health Education and Health Promotion	0.5
Health Systems Management (3rd)	2.5
Public Health Nutrition	1
Health Policy & Planning & Reforms	2

1. C-1-S-2. Reproductive Health and Community Based Interventions

Course Credit:1.5

Introduction:

Although the economic condition of Pakistan is improving, the health indicators almost remain stagnant with infant mortality at 76/1000 live births and maternal mortality at 250- 340/100,000 live births. One third of childbearing aged women have an unmet need for contraception. The country is faced with many problems in the social and health sectors. The social marginalization of women is reflected not only in their limited opportunities for education and income but also in the health indicators. Not only are mother and infant mortality rates very high, malnutrition and infectious diseases are particularly widespread among women. This core course provides information on the reproductive health problems of women and men and possible solutions.

Learning Goal:

The goal of this course is to enable the students to have the knowledge and skills to address and provide solutions for a better reproductive health.

Learning Objectives:

By the end of the course, the students will be able to:

1. Describe the current reproductive health issues for women and men
2. Identify underlying causes and cross-linkages to different reproductive health outcomes

3. Address the need for improving women's health status through a multi-dimensional and inter-sectoral approach, and
4. Construct, design and apply appropriate interventions to address these concerns.

Contents:

The following areas will be covered during the course:

1. Basic concepts and landmark events related to reproductive health and its evolution
    - Introduction to the course: Historical background of RH
    - Life course perspective to RH
    - ICPD, post ICPD, Beijing + 10
    - Safe Motherhood and Continuum of Care
2. Reproductive behavior in Pakistan
3. Contraception as a preconceptional health intervention
4. Abortion as a public health issue
5. Antenatal and obstetricalcare models
    - Determinants of maternal mortality
    - Measurement of maternal mortality ratio and rates.
    - Obstetrical care (EOC, EmOC, BOC)
    - Unmet obstetrical need
    - Delays in obstetrical care provision
    - Integrated approach to newborn care
6. RH needs of special populations

- RH issues of adolescents and young adults
- RH needs of and issues for men
- Role of males in Safe Motherhood

7. Diseases of public health importance in RH, e.g.,
   - Cancers of reproductive tract, STIs etc
   - Cancers of breast
   - Sexually transmitted infections
   - HIV AIDS
8. Health systems issues, e.g.
   - Access to services at various levels
   - Role of the district health system in reproductive health
   - Role of the tertiary care hospital in reproductive health
   - Primary health care and reproductive health including community based interventions
9. Cross cutting themes, e.g., research, monitoring and evaluation, quality of care
   - Evidence-based reproductive health interventions
   - Quality of care in RH
   - Integrated approach to provision of reproductive health services
   - Beyond numbers: Determinants of maternal mortality
   - Socio-economics of Reproductive health care.
10. Data sources in reproductive health:

- Websites
- Reports, surveys and publications focusing on RH
- RH programs at the district level by UNFPA
- MIS in reproductive health

Teaching Methodology:

Lectures, discussions, readings, group work, assignments, field trip, plen

2. **C2 S2: Maternal & Child Health Programmes and Interventions**

   CREDIT HOURS : 1.5

Introduction:

This course focuses on the integration and building upon the basic concepts as well as to allow them to use their quantitative and qualitative skills to enhance their understanding of child health issues. The course will equip them to promote optimal health for the fetus, newborn and the child in the context of underlying determinants of ill health, trends in survival, morbidity, nutritional and environmental factors, immunizations, access to health care and health policies. Injuries and disability will also be discussed.

Learning Goal:

The learning goal of the course is to equip the participants with the skills, knowledge and principles to explore the risk factors for poor child health outcomes and manage and evaluate effectively the child health programs at the national, provincial and district levels.

Learning Objectives:

At the end of the course, the participants should be able to:

1. Establish the Public Health perspective on Child Health, primarily focusing on preventive aspects.
2. Describe the historical and current situation of fetal and child health in the country and the region..
3. Understand the health problems among children using the framework emphasizing the analysis of underlying principles and theories.
4. Use analytical tools of epidemiology, paediatrics, health services, developmental and social sciences, demography and policy analysis in identifying problems and solutions in child health.

5. Establish the current best practices in Child Health in light of the recent developments,

   i.e. Millennium Development Goals, Bellagio Child Survival Study Group's recommendations, Lancet Neonatal Survival Program etc.

Contents:

The following areas will be covered during the course:

1. Introduction to Child Health
2. Child Health: The Public Health Perspective
3. Assessing newborn health: The Neonatal Survival
4. Assessment of child health using different tools in Epidemiology, Biostatistics and Paediatrics.
5. Child Health: The Programmatic Issues in the contextual framework.
6. Strengthening The Health Systems For Child Health
7. Child Health: Global Issues

Teaching Methodology:

The teaching methodology will include Lectures, interactive discussions, group works and assignments.

Recommended Readings:

1. Black RE, Morris SS, Bryce J. Where and why are 10 million children dying every year?Lancet. 2003;361:2226-34. Available from: URL:http://www.who.int/child-adolescent-health/New_Publications/CHILD_HEALTH/CS/CS_paper_1.pdf

2. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS; Bellagio Child Survival Study Group. How many child deaths can we prevent this year? Lancet. 2003;362: 65-71.

3. Bryce J, el Arifeen S, Pariyo G, Lanata C, Gwatkin D, Habicht JP; Multi-Country Evaluation of IMCI Study Group. Reducing child mortality: can public health deliver? Lancet. 2003;362: 159-64.

4. Victora CG, Wagstaff A, Schellenberg JA, Gwatkin D, Claeson M, Habicht JP. Applying an equity lens to child health and mortality: more of the same is not enough. Lancet. 2003;362: 233-41.

5. Claeson M, Gillespie D, Mshinda H, Troedsson H, Victora CG; Bellagio Study Group on Child Survival. Knowledge into action for child survival. Lancet. 2003;362: 323-7. Available from: URL: http://www.who.int/child-adolescent-health/New_Publications/CHILD_HEALTH/CS/CS_paper_5.pdf

6. Bawaskar HS. The world's forgotten children [editorial]. Lancet. 2003;361: 1224-5.

7. Lawn JE, Cousens S, Zupan J; Lancet Neonatal Survival Steering Team. 4 million neonatal deaths: when? Where? Why? Lancet. 2005;365: 891-900.

8. Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N, de Bernis L; Lancet Neonatal Survival Steering Team. Evidence-based, cost-effective interventions: how many newborn babies can we save? Lancet. 2005;365: 977-88.

9. Knippenberg R, Lawn JE, Darmstadt GL, Begkoyian G, Fogstad H, Walelign N, Paul VK; Lancet Neonatal Survival Steering Team. Systematic scaling up of neonatal care in countries. Lancet. 2005;365: 1087-98.

10. Martines J, Paul VK, Bhutta ZA, Koblinsky M, Soucat A, Walker N, Bahl R, Fogstad H, Costello A; Lancet Neonatal Survival Steering Team. Neonatal survival: a call for action. Lancet. 2005;365: 1189-97. Available from:

URL:http://www.who.int/child-adolescent-health/New_Publications/NEONATAL/The_Lancet/Neonatal_paper_4.pdf

11. Tinker A, ten Hoope-Bender P, Azfar S, Bustreo F, Bell R. A continuum of care to save newborn lives [comment]. Lancet.2005;365: 822-5. Available from: URL:http://www.who.int/child-adolescent-health/New_Publications/NEONATAL/The_Lancet/2_The_Partnerships.pdf

12. Zaidi A, Khan T, Akram D. Early child health and survival strategies in Pakistan: a situational analysis. In: Bhutta ZA (ed.). Maternal and child health in Pakistan: challenges and opportunities. Karachi: OxfordUniversity Press; 2004.

13. Bhutta ZA, Ali N, Hyder A, Wajid A. Perinatal and newborn care in Pakistan: seeing the unseen. In: Bhutta ZA (ed.). Maternal and child health in Pakistan: challenges and opportunities. Karachi: OxfordUniversity Press; 2004.

14. Siddiqi S,Haq IU, Ghaffar A, Akhtar T, Mahaini R. Pakistan's maternal and child health policy: analysis, lessons and the way forward. Health Policy 2004;69:117-30.

Students' Evaluation:

Formative (20%)

Ongoing assessment through class participation and class exercises

Summative Assessment (80%)

Summative assessment consist of: MCQs and Short essay questions

3. C3S2: Communicable and Non-communicable Disease Control

Course Credit:2+1

Introduction:

Communicable diseases continue to be major problem in Pakistan and its surrounding region. However, non-communicable diseases are on the rise at the same time and thus constitute a double burden for these countries undergoing transition. Injuries and disability add to the burden on health systems to mount a response through inter-sectoral collaborations. Effective control programmes and projects need to be in place to reduce the burden of disease. In this context the economic, social science and policy aspects of the disease need to be explored and discussed.

Learning Goal:

The goal of this course is to equip the students with knowledge and skills to prevent and control communicable and non-communicable diseases including injury prevention.

Learning Objectives:

By the end of the course, the participants will be able to:

1. Describe key concepts of communicable and chronic non-communicable disease (NCD) epidemiology with reference to developing countries in general and Pakistan in particular.
2. Conduct an outbreak investigation with a relation to microbiological information.
3. nduct surveillance for communicable and non-communicable diseases and injuries.
4. Design and conduct a disease control programme for any disease /injury.

Contents:

The following areas will be covered during the course:

1. Introduction to Communicable and Non-communicable Diseases: concepts and strategies
2. Epidemiology of communicable diseases: Basic Concepts
3. Surveillance
4. Outbreak Investigation
5. Polio Eradication: New challenges and strategies
6. Biological principles to development of disease prevention and control or management programmes, including immunology and microbiology
7. Burden of Diseases
8. Communicable and Non-Communicable Diseases Trends and Policies
9. Injury and injury prevention.
10. Private Public Partnership in disease control: Integration of non-communicable disease prevention and control within the context of primary and secondary health care
11. Role of NGOs in disease control
12. Disease Early Warning System
13. Epidemiology of Genetics and its role in Communicable and Non-communicable diseases
14. Epidemiology of NCDs in Pakistan
15. The National Action Plan for NCD prevention, control and health promotion: concepts, theory and practice

Teaching Methodology:

Interactive discussions, individual assignment, exercises and group discussions

Recommended Readings:

1. Bender AP, Williams AN, Johnson RA, Jagger HG. Appropriate public health responses to clusters: the art of being responsibly responsive. Am J Epidemiol 1990;132:S48-52.
2. BenensonAS. Control of communicable diseases in man, 15th ed. WashingtonDC: American Public Health Association; 1990.
3. Caldwell GG. Twenty-two years of cancer cluster investigations at the Centres for Disease Control.Am J Epidemiol 1990;132:S43-7.
4. Dicker RC, et. al. Principles of epidemiology:an introduction to applied epidemiology and biostatistics, 2nd ed. Atlanta, GA, USA: Centers for Disease Control and Prevention, 1992. Self-study course 3030-G. Available from: URL: http://www.phppo.cdc.gov/PHTN//catalog/pdf-file/Epi_Course.pdf
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18. Nishtar S. Cardiovascular disease prevention in low resource settings: lessons from the Heartfile experience in Pakistan. Ethn Dis. 2003 Summer;13(2 suppl. 2):S138-48.

19. Nishtar S. Prevention of coronary heart disease in South Asia. Lancet 2002 Sep;360: 1015- 18.

20. Nishtar S. Public-private partnerships in health: a global call to action. Health Res Poliy Syst 2004 Jul;2(1): 5.

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22. RosenbergMD, Hazlet KK, Schaefer J, Wells JG , Pruneda RC. Shigellosis from swimming. J Am Med Assoc. 1976;236:1849-52.

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Students' Evaluation:

Formative (20%)

Ongoing assessment through class participation and class exercises

Summative Assessment (80%)

Summative assessment consist of: MCQs and Short essay questions

4. C-4-S-2 Health Education and Health Promotion

Course Credit :0.5

Introduction:

Pakistan is in the transitional phase of development with the issues of the fast changing paradigms in the face of small expenditure on health. Faced with the fact that the health problems are immense, health promotion is an important intervention to change behaviours and attitudes of people to deal with largely preventable health problems. It needs the input in the form of proper planning, implementation and evaluation of Health Promotion Programmes and projects. Health Promotion is considered as the continuation of the skills already learnt in the earlier courses.

Learning Goal:

Reorient the students to turn them into health promotion specialists and communicators.

Learning Objectives:

By the end of the course participants should be able to

1. Describe the major approaches to the promotion of health, including the underlying theories and procedures used in evaluating them.
2. Design a health promotion campaign.
3. Describe the basic principles of behavior change and management, the scientific, social, cultural and economic bases of health promotion, as well as the political and ethical issues that affect health promotion activities.
4. Demonstrate the communication skills which public health specialists be called upon to play in Health Promotion

Contents:

The following areas will be covered during the course:

1. Introduction to Health Promotion and Education
   - Health promotion
   - Risk transition
   - Ottawa Charter
   - Adelaide, Sundsval, Jakarta and Mexico, Bangkok conferences
   - Life course perspective
   - World Health Report 2002
2. Health perspectives and reflections
   - Health as a continuum
   - Approaches to Health Education
   - Orientations for health education
3. Evidence-based Health Promotion and Planning
   - Principles of Health Promotion
   - Hierarchy of evidence
   - Outcome model of Health Promotion
   - A new evidence paradigm
   - Health A new evidence paradigm
4. Health Promotion theoretical perspectives
   - Ecological Models

- Community theories
- Diffusion of innovations
- Community organization theory
- Organizational change theory
- Interpersonal
- Social learning theory
- Social cognitive theory
- Individual
- Trans theoretical model / Stages of change model
- Health belief model
- Consumer information processing Model

5. Models of Health Promotion
   - Aims of Health Promotion
   - Towards a more integrated model
   - Tanahills Model
6. Models of Health Promotion Planning
   - PRECEDE-PROCEDE
   - Social Marketing
   - Logic Model
7. Health Communication
   - Types and levels
   - Principles of effective communication

- Message
- Audience
- HEALTHCOMS 5 step methodology
- CDC's Health Communication Wheel
- "A" frame of advocacy
- 7 C's of effective communication
- "P" process
- Health Communication campaign
- Planning a comprehensive health communication campaign

8. Steps of the comprehensive health communication campaign
    - Steps of the comprehensive health communication campaign
9. Social Marketing
10. Evaluating Health Promotion Programs
    - Stages of research and evaluations for Health Promotion programs
    - Best practices in health promotion
    - Skills for evaluation
    - Steps off evaluation process

Teaching Methodology:

Teaching is carried out in form of didactic and participative lectures and individual and group exercises. The participants are supposed to complete a supervised class assignment

i.e. a mini project based on the PRECEDE-PROCEDE framework which entails fieldwork.

Recommended Readings:

1. Elder JP. Behavior change and public health in the developing world. Thousand Oaks, CA; SAGE; 2001.
2. Ewles L, Simmett I. Promoting health: a practical guide, third edition. London: Scutari Press; 1995.
3. Green LW, Kreuter MW. Health promotion planning: an educational and environmental approach, second edition. Mountain View, CA: Mayfield Publishing Company; 1991.
4. Naidoo J, Wills J. Health promotion: foundations for practice, 2nd ed. London: Bailliere Tindall; 1994.
5. Rogers EM, Kincaid DL. Communication networks: towards a new paradigm for research. New York, NY: The Free Press; 1981.
6. Rogers EM. Diffusion of innovations, third edition. New York, NY: The Free Press; 1983.
7. Valente TW. Evaluating health promotion programs. New York, NY: OxfordUniversity Press; 2002.
8. World Health Organization. Education for health: a manual on health education in primary health care. Geneva: World Health Organization; 1988.

Students' Evaluation:

Formative (20%)

Ongoing assessment through class participation, class exercises and individual assignments, i.e. developing a health promotion programme using PRECEDE-PROCEDE framework.

Summative Assessment (80%)

Summative assessment consist of: MCQs and Short essay question

5. C-5-S-2 : Health Systems Management

CREDIT HOUR :0.5

Introduction:

Pakistan has one of the best knitted network health care facilities in public sector. These facilities mostly, face the problems of underutilization and under functioning along with the technical and allocative inefficiency. The management of private sector has also been considered inefficient and not very effective. Specific Management tools and techniques, such as strategic management, management by objectives, quality assurance methods, monitoring and evaluation of the health systems outputs and outcomes, and economic appraisal are not practiced. Insufficient management knowledge, in appropriate attitude and skills are reducing the capacity to improve the system.

Learning Goal:

The overall goal of the course is to enable the participants to describe the principal concerns in Health Systems management in order to improve the management capacity of health managers in terms of their knowledge, attitude and skills.

Learning Objectives:

By the end of the course, the participants will be able to:

1. Define management that encompasses the main aspects of problem-solving typically faced by health managers;
2. Define and describe essential concepts, principles, methods and terms in management;

3. Apply certain techniques in the resolution of selected management issues and
4. Describe basic methods of quantitative analysis being used by health managers.
5. Demonstrate change management, communication and leadership skills.
6. Define what quality means from the standpoint of the variety of stakeholders.
7. Explain the relationship of cost and quality.

Contents:

The following areas will be covered during the course:

1. Introduction to Health System and Scope of Health Systems
2. Managing Health System for Better Outcomes, Global Issues and Priorities for Pakistan
3. Management: Traditional and Contemporary Issues and Challenge
4. Management and the Manager's Job
5. An Introduction to Systems, Client Orientation, Process Analysis, Problem Identification
6. Evidence-based decision making
7. Use of HMIS in HSM
8. Supportive supervision &leadership
9. Capacity building in human resource management
10. Introduction to Human Resource Management: Competencies and Job Description

11. Challenges resolution techniques, staff motivation and performance appraisal
12. Functional and Task Analysis
13. Functional and Task Analysis: Exercise
14. Monitoring and Evaluation
15. Introduction to Financial Management
16. Performance Budgeting and Analysis in HSM
17. Financial Management in HSM
18. Financial Management in HSM: Exercise
19. Logistics Cycle in HSM
20. Quality Management
21. Quality Management:Exercise
22. Tools for Quality Assessment / improvement
23. Tools for Quality Assessment / improvement: Exercise

Teaching Methodology:

Lectures, discussions, assigned individual and group exercises, Role plays

Recommended Readings:

1. Amonoo-Lartson R, Ebrahim GJ, Lovel HJ. District health care: challenges for planning, organization and evaluation in developing countries, 2nd ed. Hong Kong: Macmillan Press; 1985.
2. Chanawongse K. Understanding primary health care management: from theory to practical reality. Bangkok: Buraphasilp Press; 1990.

3. Gourlay R. Training manual on health manpower management (8 volumes). Geneva: Division of Health Manpower Development, World Health Organization; 1988. Document no. WHO/EDUC/88.195.

4. McMahon R, Barton E, Ross F. On being in charge: a guide to management in primary health care, 2nd ed. Geneva: World Health Organization; 1992.

5. Reinke WA. Health planning for effective management (HPEM).New York, NY:OxfordUniversity Press; 1988.

6. Shortell SM, Kaluzny AD. Health care management, 3rd ed. Albany, NY: Thompson Delmar Learning; 2000.

7. World Health Organization. The world health report 2000: Health systems – improving performance. Geneva: World Health Organization; 2000. Available from: URL: http://www.who.int/entity/whr/2000/en/whr00_en.pdf

Students' Evaluation:

Formative (20%)

Ongoing assessments, group works and exercises and an end of course test.

Summative Assessment (80%)

Session e

6. C-6-S-2 Public Health Nutrition

CREDIT HOURS :01

Introduction:

It is essential that the students of Public Health understand the importance of absence of good nutrition as a measure of physical, social and economic indicators of health and development of a country. There is a need to comprehend the role of good nutrition in development and maintenance of a healthy body. This will help in the identification of common nutritional disorders at individual levels and also in advising mothers in matters related to nutrition during periods of stress and for the optimal growth of the young children.

Learning Goal:

The goal of this course is to create a group of trainees well-equipped in handling nutritional problems at community and hospital level, enabling them to understand the fundamentals of nutrition, nutritional deficiencies, preventing and managing nutritional problems in the community and hospital.

Learning Objectives:

At the end of the module, the trainee should be able to:

1. List the types of foods and the nutritional requirements of the children, mothers and people of old age.
2. Write a nutritional prescription for a child at different ages and the mothers.
3. Describe the nutritional requirements of the infants and young children.

4. List the nutritional requirements of Mothers during pregnancy and lactation.
5. Describe the nutritional aspects of human milk.
6. Define and Perform nutritional assessment of young children
7. Describe the nutritional effects on growth
8. Examine the development of growth charts and define their uses
9. Plan and perform nutritional surveillance using various indicators.
10. Define nutritional surveillance, indicators and methods.
11. Analyze nutritional data using EPINUT/Nutrisurvey.
12. Counsel mothers on infant feeding
13. Counsel mothers with malnourished child in problem solving in the community and the hospital.
14. Identify common micronutrient deficiencies, management and prevention
15. Describe common nutritional problems (deficiency or excess of nutrients) and their management and their prevention.
16. Carry out field visit to a restaurant and describe the food sanitation etc.
17. Write a report on field work and make a presentation of their work for critical appraisal.

Contents:

The following are the contents of the course:

A. Normal nutrition

1. Fundamental elements of human nutrition

2. Nutrition during growth and health
3. Nutritional requirements of neonates and infants 0-6 months
4. Nutrition requirements of infants 6-12 months
5. Nutrition requirements of children 1-5 years
6. Nutrition requirements of children 5-12 years
7. Nutrition requirements during physiological stress
8. Nutrition requirements of Adolescents
9. Nutrition requirements during Pregnancy
10. Nutrition requirements during Lactation
11. Household food safety

B. Assessment of Growth and Nutritional status of children:

1. Nutritional status: its assessment by field techniques
2. Nutritional status: Its assessment through anthropometry
3. Using Growth Charts as primary health care tool
4. Nutritional Prescription for children
5. 6-12 months of age
6. 12 months - 5 years of age
7. 5 - 12 years of age
8. Nutritional prescription of the mothers during normal health, pregnancy and lactation

C. Human Milk and its importance:

1. Optimal Breastfeeding Practices
2. Advantages of breastfeeding and dangers of bottlefeeding
3. Exclusive breastfeeding
4. Complementary feeding
5. Perceived insufficiency of breastmilk/Lactation failure
6. Promotion and support of breastfeeding
7. Management of lactation problems

D. Malnutrition

1. Classification of Malnutrition
2. Causes of Malnutrition
3. Risk factors and their assessment
4. Management of Malnutrition
5. Clinical Assessment of Malnutrition
6. Protein energy malnutrition: Marasmus, PEM, Kwashiorkor
7. Micronutrient Deficiencies
8. Nutrition during special circumstances
9. Establishing a Lactation Management clinic

E. Health Education in Nutrition

1. Communication skills
2. Nutritional counselling
3. Nutritional and social rehabilitation

F. Monitoring and Evaluation of nutrition intervention programmes

1. National Nutrition Programmes
2. National Nutrition Surveys
3. Nutrition in IMCI
4. Breastfeeding Policy (International Code for Breastfeeding)
5. Expanded Programme for childhood illnesses and Nutrition
6. IDD control programme

G. Nutrition for children living in special situation:

1. Poverty
2. War
3. Natural calamities
4. HIV/AIDS
5. Food safety
6. Storage and Preservation of Foods at local and industrial level

Teaching Methodology:

Lectures, interactive teaching using problem-based learning/discussions, tutorials, seminars and discussions, assignments and field work, using computer softwares, Practical Skills in the community and hospital, Clinical Ward assignments.

Recommended Reading:

1. Allen LH. Nutritional influences on linear growth: a general review, Eur J Clin Nutr 1994;48(suppl 1): 75-89.

2. Ashraf RN, Jalil F, Khan SR, Zaman S, Karlberg S, Lindblad BS, HansonLÅ. Early child health in Lahore, Pakistan: V. Feeding patterns. Acta Paediatr 1993;390(suppl.): S48-62.

3. Ashraf RN, Jalil F, Zaman S, Karlberg J, Khan SR, Lindblad BS, Hanson LÅ. Breast feeding and protection against neonatal sepsis in a high risk population. Arch Dis Child 1991;66:488-90.

4. Atkinson SA, Hanson LA, Chanrdra RK (eds.). Breastfeeding, nutrition, infection and infant growth in developed and emerging countries.Newfoundland, Canada: ARTS Biomedical Publishers and Distributors; 1990.

5. Brown KH, Black RE, Lopez de Romana G, Creed de Kanashiro H. Infant feeding practices and their relationship with diarrhoeal and other diseases in Huascar (Lima), Peru. Pediatr 1989;83:31-40.

6. Cohen RJ, Brown KH, Canahuati J, Rivera LL, DeweyKG. Determinants of growth from birth to 12 months among breast fed Honduran infants in relation to age of introduction of complementary foods, J Pediatr 1995;96:504-10.

7. de Onis M, Blössner M. World Health Organization Global Database on Child Growth and Malnutrition. Geneva: Programme of Nutrition, World Health Organization; 1997. Available from: URL:

   http://www.who.int/nutgrowthdb/database/en

8. Dewey KG, Heinig MJ, Nommsen LA, Peerson JM, Lonnerdal B. Breastfed infants are leaner than formula-fed infants at 1 year of age: the DARLING study. Am J Clin Nutr 1993;57: 140-5.

9. Dewey KG. Infant nutrition in developing countries: what works [comment]? Lancet, 2005 28-Jun 3;365: 1832-4.

10. Diaz S, Herreros C, Aravena R, Casado ME, Reyes MV, Schiappacasse V. Breast feeding duration and growth of fully breast fed infants in a poor urban Chilean population. Am J Clin Nutr 1995;62:371-6.

11. Gross R, Kielmann A, Korte R, Schoeneberger H, Schultink W. Guidelines for nutrition baseline surveys in communities. Jakarta: SEAMEO, TROPMED, GTZ; 1997.

12. Hanson L, Ashraf R, Zaman S, Karlberg J, Khan SR, Lindblad B, et al. Breastfeeding is a natural contraceptive and prevents disease and death in infants, linking infant mortality and birth rates. Acta Paediatr1994 Jan;83:3-6.

13. Hanson LÅ, Ashraf R, Zaman S, Karlberg J, Lindblad BS, Jalil F. Breast feeding is a natural contraceptive and prevents disease and death in infants, linking infant mortality and birth rates. Acta Paediatr 1994;83:3-6.

14. Hanson LÅ, Carlsson B, Jalil F, Hahn-Zoric M, Karlberg J, Mellander L, Khan SR, Murtaza A, Thiringer K, Zaman S. Antiviral and antibacterial factors in human milk. In: HansonLÅ (ed.). The biology of human milk, vol. 15. New York, NY:Néstle Nutrition Workshop Series, Raven Press; 1989. p. 141-157.

15. Hanson LÅ, Carlsson B, Zaman S, Adlerberth I, Mattsby Baltzer I, Jalil F. The importance of breastfeeding in host defense: production of the milk antibodies and the anti- inflammatory function of human milk. Pak Paed J 1992;XV: 155-164.

16. Hanson LÅ, Silfverdal SA, Stromback L, Erling V, Zaman S, Olcen P, Telemo E. The immunological role of breast feeding. Pediatr Allergy Immunol 2001;12 Suppl 14:15-9.

17. Hanson LÅ. Immunobiology of human milk:how breastfeeding protects babies. Amarillo, TX, USA: Pharmasoft Publ; 2004.

18. Karlberg J, Ashraf RN, Saleemi MA, Yaqoob M, Jalil F. Early child health in Lahore, Pakistan: XI. Growth. Acta Paediatr 1993;390 (suppl):119-49.

19. Karlberg J, Zaman S, HansonLÅ, KhanSR, LindbladBS, JalilF. Aspects of infantile growth and the impact of breastfeeding: a case control study of the infants from four socioeconomically different areas in Pakistan.Hum Lactat 1990;4: 219-47.

20. Pakistan Demographic and Household Survey, 1990-1994. Pakistan Institute of Population studies and Govt of Pakistan, 1994.

21. Pelto GH, Santos I, Goncalves H, Victora CG, Martines J, Habicht JP.Nutrition counseling training changes physician behavior and improves caregiver knowledge acquisition. J Nutrruary 2004; 134: 357–362.

22. Penny ME, Creed-Kanashiro HG, Robert RC, Narro MR, Caulfield LE, Black RE. Effectiveness of an educational intervention delivered through the health services to improve nutrition in young children: a cluster-randomised controlled trial. Lancet 2005 28-Jun 3;365: 1863-72.

23. Saleemi MA, Ashraf RN, Mellander L, Zaman S. Determinants of stunting at 6, 12, 24 and 60 months and postnatal linear growth in Pakistani children. Acta Paediatr 2001;90:1304-8.

24. Tulchinsky TH, El Ebweini S, Ginsberg G, Abed Y, Montano-Cuellar D, Schoenbaum M, et al. Growth and nutrition patterns of infants associated with a nutrition education and supplementation program in Gaza, 1987-92. Bull WHO 1994;72:869-75.

25. Victora CG, Smith PG, Vaughan JP, Nobre LC, Lombardi C, Teixeira AM, et. al. Evidence for protection by breast-feeding against infant deaths from infectious diseases in Brazil. Lancet 1987 8;2:319-22.

26. Victora CG, Smith PG, Vaughan JP, Nobre LC, Lombardi C, Teixeira AMB, et. al. Evidence for protection by breastfeeding against infant deaths from infectious diseases in Brazil. Lancet 1987;2:319-21.

27. WHO Collaborative Study Team. Effect of breastfeeding on infant and child mortality due to infectious diseasesin less developed countries: a pooled analysis, Lancet 2000;355:451-55.

28. World Health Organization, UNICEF. Global strategy for infant and young child feeding. Geneva: World Health Organization; 2003. Available from: URL: http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/gs_iycf.pdf

29. World Health Organization. Effect of breastfeeding on infant and child mortality due to infectious diseases in less developed countries: a pooled analysis. WHO Collaborative Study Team on the Role of Breastfeeding on the Prevention of Infant Mortality. Lancet 2000 5;355:451-5.

30. World Health Organization. Management of severe malnutrition: a manual for physicians and other senior health workers. Geneva: World Health Organization; 1999. Available from: URL:

http://whqlibdoc.who.int/hq/1999/a57361.pdf

31. World Health Organization. Management of the child with a serious infection or severe malnutrition: guidelines for care at the first-referral level in developing countries. Geneva: Department of child and adolescent health and development, World Health Organization;2000. WHO document WHO/FCH/CAH/00.1. Available from: URL: http://www.who.int/child-adolescent-health/publications/referral_care/Referral_Care_en.pdf

32. World Health Organization. Measuring change in nutritional impact of supplementary feeding programme for vulnerable groups. Geneva: World Health Organization; 1983.

33. Zaman S, Jalil F, Saleemi MA, Mellander L, Ashraf RN, Hanson LÅ. Changes in feeding patterns affect growth in children 0-24 months of age living in socioeconomically different areas of Lahore, Pakistan. Adv Exp Med Biol 2002;503:49-56.

Students' Evaluation:

Formative (20%)

Ongoing assessment through class participation and class exercises

Summative Assessment (80%)

Summative assessment consist of: MCQs and Short essay questions

34.

7. C7S2 Health Policy & Planning Reforms

CREDIT HOURS: 2

COURSE CONTENT:

Introduction:

Over the past 60 years, Pakistan has developed a health system which includes a number of programmes aiming at promoting health recognized as the developmental need, based on a set of policies and with increasing financial support over the years. However, there are a number of gaps in the implementation of policies for a number of reasons not leading to a translation into desired outcomes.

Learning Goal:

The overall goal of the course is to provide the participants a basis on how to critically analyze, develop and improve health policies.

Learning Objectives:

By the end of the course, the participants will be able to:

1. Describe concepts and tools used in health policy.
2. Conduct a stakeholder analysis in the process of policy development.
3. Comprehend the inter-relationship between policy, plan, program and project as well as planning at macro and macro levels.
4. Understand the implementation modalities of macro-level and micro-level policy decisions at micro-levels (translation of policies into actions).

5. Appreciate extra-health-policy factors that influence health policies and their desired outcomes.
6. Describe the policy procedures that exist in Pakistanand in other countries and critique their strengths and weaknesses.
7. Understand methods and importance of monitoring, evaluation and research for health policies.
8. Advocate health sector reform agenda effectively.

Contents:

The following are the contents of the course:

1. Introduction to Health Policy and Planning, what and why?
2. Policy Perspectives (I) Macro Policy
3. Policy Perspectives (II) Macro Policy
4. Policy Perspectives (III) Micro Level
5. Policy Perspectives:A comparison between Macro and Micro Level Policies
6. Impact of other National Policies on Health System
7. Devolution Plan: Past to Present (I)
8. Devolution Plan: Past to Present (II)
9. Health Sector Reforms: What and why?
10. Health Sector Reforms: Role of stakeholders and stakeholder analysis
11. Policy versus Planning
12. Role of International Commitments on Health Policies (MDGs,)
13. Research and Policy
14. National Policies and their implications and National Health Outcomes: Sustainability Issues
15. National Policies and their implications and National Health Outcomes: Sustainability Issues
16. Health Sector Performance as a determinant of National Health Policy
17. Evidence-based Policy Making
18. Advocacy

19. Policy and Politics
20. Leadership and Policy

Teaching Methodology:

Lectures, discussions, group work, simulations and role plays, individual assignments, and presentations.

Students' Evaluation:

Formative (20%)

Ongoing assessment through class participation and class exercises

Summative Assessment (80%)

Summative assessment consist of: MCQs and Short essay questions

Recommended Readings:

1. Abel-Smith B. An introduction to health: policy, planning and financing. London: Longman Group Ltd; 1994.
2. Bennett S, McPake B, Mills A. Private health providers in developing countries: serving the public interest? London, UK: Zed Books; 1997.
3. Berman P (ed.). Health sector reform in developing countries: making health development sustainable. Boston, MA: HarvardUniversity Press; 1995.
4. Danis M, Clancy C, Churchill LR. Ethical dimensions of health policy. New York, NY:OxfordUniversity Press; 2002.
5. de Weil C, Alicbusan AP, Wilson JF, Reich MR and Bradley DJ. The impact of development policies on health: areview of literature. Geneva: World Health Organization; 1990.

6. Grindle MS (ed.). Getting good government: capacity building in the public sectors of developing countries. Boston, MA: HarvardUniversity Press; 1997.

7. Harding A, PrekerAS. Private participation in health services. WashingtonDC: The World Bank; 2003.

8. Hunter, DJ. Public health policy. Cambridge, MA: Polity Press; 2003.

9. Intersectoral linkages and health development:case studies in India (KeralaState), Jamaica, Norway, Sri Lanka, and Thailand.WHO Offset Publ. 1984;(83): 4-53.

10. Lashari, T. Pakistan's national health policy: quest for a vision. Islamabad, Pakistan: Health Policy Unit, The Network for Consumer Protection; September 2004.

11. Ministry of Health, Government of Pakistan. National health policy: the way forward — agenda for health sector reform. Islamabad, Pakistan: Ministry of Health, Government of Pakistan; December 2001. Available from: URL: http://lnweb18.worldbank.org/sar/sa.nsf/Attachments/Pak-NHP/$File/Pak- NHP.pdf

12. Ministry of Health, Government of Pakistan. National health policy. Islamabad, Pakistan: Ministry of Health, Government of Pakistan; 1997.

13. Nishtar, S. The gateway paper: health systems in Pakistan — a way forward. IslamabadPakistan: Pakistan's Healthy Policy Forum and Heartfile; 2006.

14. Steiner GA, Miner JR, Gray ER. Management policy and strategy. New York, NY: Macmillan Education Ltd; 1986.

15. Townsend P, Whitehead M, Davidson N (eds.). Inequalities in health: the black report and the health divide, 2nd ed. London: Penguin Group, 1992.

16. Lin V, Gibson B. Evidence-based health policy: problems and possibilities. Melbourne, Australia: OxfordUniversity Press; 2003.

17. Walt G. Health policy: an introduction to process and power. London: Zed Books; 1994.

18. Williamson C. Whose standards? Consumer and professional standards in health care. Buckingham: Open University Press; 1992.

19. World Bank. World development report 1993: investing in health. WashingtonDC: OxfordUniversity Press; 1993.

20. World Health Organization. Alma-Ata 1978: Primary health care. Geneva: World Health Organization; 1978. HFA Sr. No. 1.

21. World Health Organization. Macroeconomics and health: investing in health for economic development. Geneva: World Health Organization; 2001.

22. World Health Organization. The Adelaide recommendations on healthy public policy. Geneva: World Health Organization; 1988. Document no. WHO/HPR/HEP/95.2. Available from: URL: http://www.who.int/hpr/NPH/docs/adelaide_recommendations.pdf

23. Health Policy: Application for Nurses and Other Healthcare Professionals by Demetrius Porche

24. Making Health Policy by Kent Buse et al.

SEMESTER 3

Semester III: Courses (Credits 12) C-S-3

Advanced Epidemiology & Biostatistics	**3**
Applied Research Method & Ethics	**3**
Proposal writing	**2**
Hospital Management & Health Care Financing	**2**
Quality Management In Health Services	**2**

* Three out of six elective courses need to be taken.

1. C-1.1-S-3: Advanced Epidemiology and Biostatistics

Course Credits = 3.0

Introduction

In Biological sciences, sometimes the complexity of data collected is such that there is very little choice left for the researcher to conduct simple analyses and assure the reader about the authenticity of the data and the conclusions that are drawn. However, applications of some advanced techniques to the complex data can be useful to learn and interpret supporting the conclusions. This course is designed to answer the more complex questions that a researcher raises. This will also enable the students to further their research for a higher degree.

Learning advanced methods in Epidemiological and Biostatistical applications in Research sometimes required for a more comprehensive and detailed presentation of data bases. Statistical softwares like STATA and SAS are available for such analyses. This course is designed to provide learning opportunities to students who are interested in such advanced applications.

Learning Goal:

The learning goal of this particular course is to provide skills in understanding data and developing analysis which may be useful in their applications in a wider scenario and successfully using the statistical softwares as a form of help in analysis.

Learning Objectives:

At the end of the course, the student should be able to:

1. Apply statistical measures in the analysis of Cohort and Case control studies.
2. Analyse Disease Frequency in a wider perspective keeping the population dynamics in view.
3. Effectively apply statistical modeling techniques in different study Designs.
4. Apply comparisons in several exposure groups.
5. Describe statistical applications in survival analysis using STATA and SAS
6. Apply the analysis for interaction when studying confounding etc.

Contents:

1. Measures of disease frequency and exposure effects
2. Rates and Risk measurements
3. Odds ratios as an estimate of Relative Risk
4. Confidence intervals for rates and rate ratio
5. Test for heterogeneity of Rate Ratios
6. Person-year Analysis : Cohort studies
7. Comparison of several exposure groups using different statistical techniques.
8. Exposed cohort compared to an external standard
9. Survival Analysis
10. Analysis of unmatched case-control studies
11. Selection Bias
12. Analysis of matched Case-control studies

13. Estimating Risk ratios and Rate Ratios in case-Control studies
14. Logistic regression I
15. Logistic Regression II
16. Likelihood Inference
17. Conditional Logistic Regression
18. Poisson Regression
19. Regression models for proportions
20. Strategies for Data Analysis
21. Proportional Hazards regression for Cohort studies.
22. Multiplicative and Additive Models
23. Clustering of cases of disease
24. Analysis of data with multiple episodes as outcome
25. Sample Surveys
26. Regression Analysis and analysis of variance
27. Laws of probability and Binomial Distribution
28. Conditional probability
29. Comparison of survivorship curves
30. Several Straight lines
31. Further analysis of Frequency data
32. Multiple comparisons and sequential trials

33. Time series

34. Non Parametric application on data of different nature.

35. Choice of a statistical technique based on study designs.

Recommended Readings:

1. Gordis L. Epidemiology. Philadelphia, PA: WB Saunders Company; 2008.
2. Hennekens CH, Buring JE. Epidemiology in medicine. Boston, MA: Little Brown and Company; 1987.
3. Holford TR. Multivariate methods in epidemiology. New York, NY: Oxford University Press; 2002.
4. MacMahon B, Thomas FP. Epidemiology: principles and methods, 1st ed. Boston, MA: Little, Brown and Company; 1970.
5. Fletcher RH, Fletcher SW, Wagner EH. Clinical epidemiology: the essentials, 3rd ed. Philadelphia, PA: Williams & Wilkins Publishers; 1996.
6. Szklo M, Neito FJ. Epidemiology: beyond the basics. Boston, MA: Jones and Bartlett Publishers; 2000.
7. Korkwood BR Sterne JAC. Essential Medical Statistics. 2nd edition. Blackwell Science Ltd. Blackwell Publishing Company, 2003.
8. Dupont WD. Statistical Modelling for Biomedical Researchers. A simple introduction to the analysis of a complex data. 2nd edition. Cambridge University Press; 2008.
9. Altman DG. Practical statistics for medical research, 3rd ed. London, UK: Chapman & Hall; 1991.

10. Colton T. Statistics in medicine, 1st ed. Boston, MA: Little Brown and Company ; 1994.
11. Selvin S (ed.). Statistical analysis of epidemiologic data, 3rd edition

2. C-2-S-3: APPLIED RESEARCH METHODS

Credit hours:03

Introduction:

This is a four-credit hour course offered over two sessions; part one (credits 2) and part two (credits 2). This is an applied subject utilizing the knowledge and skills acquired in the first session. This includes the learning of skills of critically assessing the published articles in medical journals based on the knowledge acquired earlier. Applying the knowledge of epidemiology and biostatistics, population dynamics, qualitative research methods, computer skills and health systems analysis, the student will learn the development of a research question, giving essential background, making statements for objectives, data collection, analysis applying statistical methods using the computer skills and present their readings and research projects for the third session.

Learning Goal:

The goal of this course is to create a critical mass of trained persons well-oriented in writing a research proposals for the dissertations and funding purposes. It will also enable the health professionals to critically comprehend the concepts and at the same time apply the epidemiological and statistical methods to develop a research protocol making use of computer statistical softwares and information technology.

Learning Objectives:

The learning issues relating to the above objectives are as follows:

1. The critical analysis of the published scientific paper will be used as baseline to start with the concept of writing a proposal to enable the students to identify the scientific requirements of medical writing and the various components of the paper.

2. (This will be critical reading of a published paper in context with the background, objectives,

aims, study designs, data collection tool and their validity, data presentation and interpretation, in terms of discussion and conclusions. Statistical methods will be assessed for their applications and validity. The citation and listing of references will also be examined using the guidelines for critical assessment of scientific papers).

- The definitions of research and its uses and advantages will be highlighted in context with its importance in health and disease.
- The selection and prioritizing topic for research demands some underlying reasoning which will be dealt with in this section requiring guidelines to select a topic.

3. Hands-on-training of the students will be made possible in searching for the relevant literature using hand and web search.

- Providing a background to the study will be worked at through exercises using several examples.

4. Formulation of objectives needs clarity of logical thinking which can focus on the scientific principals and, at the same time, covering the language issues.

5. Formulation of hypothesis is critical in terms of stating them in measurable terms.

6. Through definitions of objectives and hypothesis, the identification of variables and their types will be worked at.

7. Once the objectives and variables are identified, the design of the study will be identified based on the prior knowledge of basics in epidemiology.

8. Sampling techniques employed will be qualified appropriate to the objectives and the study designs. Probability and non-probability techniques will be applied on different scenario to appropriate their use in research.

9. Sample size estimation based on objectives and study designs will be done using various statistical applications.

10. Construction of Proforma and questionnaire appropriate to the study objectives and variables.

Validity of the measurements will be discussed for the documented variables.

Importance of self- and interviewer administered questionnaire.

Pre-testing the methodology of data collection

11. Outlining of the plan for data analysis will be carried out constructing dummy tables and identifying appropriate statistical analysis.

12. Preparing of the work plan using the pattern of a Gantt chart.

13. Preparing budget and its justification for a proposal when seeking funding.

14. Writing the title of the study topic to include the study design, variables and statistical analysis.

15. Abstract writing will be done according to different standards.

16. Presentation of the project will be the final step

Contents:

Following are the contents of the course:

1. Principles of critical reading of a scientific paper

2. Definition of research

3. Importance of research in public health

4. Selection of topic for research

5. Literature Search using internet and library

6. Preparing the background for the proposal writing.

7. Parts of proposal writing.

8. Study design, sampling techniques, inclusion and exclusion criteria.

9. Methodology

10. Choosing the statistical techniques.

11. Reference writing

12. Abstract writing

13. Title writing for the proposals

Teaching Methodology:

Interactive discussions, exercises, group discussions/work and hands-on training

Reference books

1. Research Methods in Health by Ann Bowling
2. Qualitative Research in Health Care by Pope & Mays
3. WHO Operational Research Manual

3. C-3-S-3 :Research Proposal writing

Credit hours: 02

Introduction:

The exposure to community-based and health systems research is an essential element that the current MPH programme supports to fulfill. This helps in the conceptualization of this research experience and converting it into a scientific write-up to complete the requirements for the third semester of the MPH programme.

The document serves to assist students in understanding the section of the topics for research, write the proposal for approval by "s Institutional Review Board (IRB) and the funding agencies. Dissertation writing is required from each student of MPH to generate a meaningful academic product that demonstrates the student's application of crucial knowledge and skills including:

- Aspects of relevant disciplines like epidemiology, biostatistics, qualitative research methods etc.
- Conceptual framework for the working hypothesis or research question.
- Research objectives, hypotheses and research questions formulation in measurable terms.
- Study design, study population and selection processes correctly according to the objectives.
- Interpretation and analysis of data in support of a decision or conclusion.
- Correctly written bibliography.

Proposal for the Dissertation: The proposal submitted for a dissertation should follow the outline listed below. The outline corresponds to the major chapters expected in a thesis. Deviations from the content in this outline should be discussed and approved by the advisor (and committee in advance of submitting the proposal for the defense).

Introduction

(a) Establish the importance of the topic

(b) Conceptual model/relationship between independent and dependent variables

(c) Summary of what is/is not known

(d) What gap the study is filling

(e) Statement of research purpose(s)

Aims and Objectives/Hypotheses or research questions including operational definitions

Material and Methods

(a) Study design

(b) Duration of study

(c) Study population

- Sampling methods
- Sample size/power
- Sample recruitment: Inclusion and Exclusion criteria

(d) Data Collection Procedure: Identify the recruitment of the population to the collection of:

- Variables
- Measurements
- instruments (include copies of relevant instruments (surveys, etc.) as appendices)
- standards
- reliability
- validity

(e) Data analysis plan (including software to be used and tables if applicable)

Rationale of the study

Human Subject Protection*

a) Informed Consent Procedures

b) Confidentiality

c) Risks

d) Benefits

e) Permission to access data (if applicable)

*should also attach an approval by the IRB.

References listing

Reference listing is to be done at the end of the proposal. (The references should consist of at least 6 references from not older than last 5 year; preferably from the published articles and only occasionally from the books).

Timeline

A timeline should be attached as an annexure.

Proposed budget

A proposed budget should be given at the end of the proposal.

Summary

A structured summary should be the first part of the dissertation write up. Introduction, Objectives, Material and methods: Study design, duration, sample population including sampling techniques, sample size and sample selection and statistical analysis. Brief results and conclusions. Keywords: 3-5 words best describing the study.

- Oral and written communication and presentation of the product.

- Development of and adherence to a schedule/time frame.
- Formulation of a realistic budget and its defense.

Every student is required to show substantial work done under the supervision of the academic advisor. The following sections provide detailed guidelines for dissertation writing Part II

Introduction

It shall cover:

(a) Establish the importance of the topic

(b) Conceptual model/relationship between independent and dependent variables

(c) Summary of what is/is not known

(d) What gap the study is filling

(e) Statement of research purpose(s)

Literature Review

It shall cover:

(a) General overview

(b) Theoretical models/conceptual frameworks

4. C4.1-S3 Hospital Management

Course Title: Hospital Management

Course Credit:1

Introduction:

In the developing countries, the situation becomes even more intimidating as the hospitals have lesser space, equipment, hospital staff and are frequently overwhelmed and overcrowded. A more sensitive delivery of care in a more therapeutic environment can benefit patients and have a positive bottom-line impact on healthcare institutions. Poor Quality of Hospital Services has been a major problem for Public sector hospitals in Pakistan. One of the main contributors of the poor quality of hospital services, apparent to patients and staff alike, is the inefficiency of hospitals' management and its operations. Ninth five plan of Pakistan (1999-2003) has documented that there are large variations in the utilization of hospital services and that at present there are no quality control mechanisms in place within hospital sector, as a result, the public hospitals are generally perceived to be of low quality.

Learning Goal:

The goal of the course is to enhance the participants' knowledge regarding management and other issues faced by hospital managers and to develop their skills to address the managerial and administrative issues of Public and Private sector hospitals at all levels.

Learning Objectives:

By the end of the course the participants will be able to:

1. Describe the management of hospitals in public and private sectors.
2. Describe the functional departments of a hospital.

3. Apply the management functions such as planning, organizing, staffing and controlling in hospitals.
4. List out the problems that are being faced by hospitals in implementing effectively these management functions.
5. Describe the expected role of hospital in the community.
6. Apply the principles and practice of Hospital Management.
7. Construct budgets, financial costing and cost effectiveness of the hospital services.
8. List the requirements for efficient management of hospital services and utilities like x- rays, laboratory and indoor facilities.
9. Establish the concept of total quality management in health services.
10. Describe the dynamics of a Hospital as an Organization and the Corporate nature of a Hospital.
11. Address efficiency issues in the management of a hospital through its resources.
12. Explore possible options for Cost Containment and profitability.

Contents:

The contents of the course are as follows:

1. Hospital System and its Role, Components of a Hospital System & Role of Hospitals in PHC
2. Vision, Mission, Goals and Values of a Hospital
3. Role and Functions of Hospital Managers
4. Hospital Services Management
    - Nursing Management
    - Change Management

- Infrastructure Management

5. Inventory Management
6. Drugs Management in Hospitals-I and II
7. Human Resource Management
8. Financial Management
    - Accounting rules and practices in a public & Private Hospital
    - Financial Management
    - Hospital Financing for Sustainability
    - Cost Containment, cost effectiveness and profitability
    - Costing and Cost implications of Hospital Services
9. RAP Tool
    - Introduction to Rapid Appraisal Tool for assessment of Emergency of a Hospital
    - Data Collection in Hospitals using RAP Tool
10. Preparing a Hospital Budget
11. Hospital Waste Management and infection control
    - Hospital Environment & Hospital Waste Management
    - Hospital Environment-related issues: lighting, ventilation, Cleanliness and tidiness, horticulture and greenery, Clean, regular and safe water supply, standards of personal hygiene, Control measures for hospital associated infections
12. Accident & Emergency /Trauma Management Services
13. Human Resource Management
    - Human Resource Development: current status and future challenges

14. Infrastructure Management

- Hospital Planning and Design
- TQM and Medical Audit of the Hospital.
- Total Quality Management: key concepts and Introduction to some basic tools of TQM
- Hospital Purchasing Process
- Hospital Purchase, Tendering and Processing

15. Hospital Ethical Concerns

Teaching Methodology:

A combination of various teaching methods such as lectures, individual and group exercises, group presentations, Field visits to Private and Public Hospitals will be used.

Recommended Readings:

1. Barnum H, Kutzin J. Public hospitals in developing countries: resource use, cost, financing.Baltimore, MD: JohnsHopkinsUniversity Press; 1993.
2. Blanchet KD, Switlik MM. The handbook of hospital admitting management. USA: Aspen Publications; 1985.
3. Goel SL, Kumar R. Management of hospitals. New Dehli, India: Deep and Deep Publications; 2002.
4. King M, Lapsley I, Mitchell F, Moyes J. Activity based costing in hospitals: a case study investigation. London, UK: Chartered Institute of Management Accountants; 1994.
5. McMahon R, Barton E, Piot M, Gelina N, Rose F. On being in charge. Geneva: World Health Organization; 1992.
6. PrekerAS, Harding A (eds.). Innovations in health service delivery: the corporatization of public hospitals, vol. 1. WashingtonDC: World Bank; 2002.

7. Shepard DS, Hodgkin D, Anthony Y. Analysis of hospital costs in developing countries: a manual for managers. Waltham, MA: Institute for Health Policy, BrandeisUniversity; 1997.
8. Willan JA. Hospital management in the tropics and subtropics. London, UK: Macmillan Education Ltd, 1990.
9. World Health Organization. The hospital in rural and urban districts: report of a WHO study group on the functions of hospitals at the first referral level. World Health Organ Tech Rep Ser. 1992;819:1-74.

Students' Evaluation:

Formative (20%)

Ongoing assessment through class participation and class exercises

Summative Assessment (80%)

Summative assessment consist of: MCQs and Short essay question

5. **C4.2-S3: Health Care Financing**

Course Title: Health Care Financing

Course Credits:1

Introduction:

This course is an introduction to the field of health care financing and health economics. In the past decade, some of the most controversial policies considered by governments have involved issues that have been analyzed by health economists. For this reason, public health professionals need to have a sound basis to understand economic and financing mechanisms underlying changes occurring in the health sector.

Learning Goal:

The goal of this course is to improve the participants' knowledge and skills to deal with health economics and financing.

Learning Objectives

At the end of the course students will be able to:

1. Describe the basic microeconomic concepts
2. Apply these concepts to health and health care;
3. Explain the financing flows underpinning access to and delivery of health care services.
4. State the differences in financing the health care services among countries at different levels of income and development.
5. Analyse health care financing options in a variety of countries and settings and making informed recommendations on how to improve health financing.

Contents:

The following are the contents of the course:

1. Basic Economic concepts and tools.
    - Definitions: Economics, Macro & Microeconomics, economic systems,
    - Goals of an economic system,
    - Efficiency (technical, allocative)
    - Equity
    - Demand & Supply
    - Price, Market forces, Price equilibrium
    - Types of Goods, Public, Private, Externalities, Opportunity cost
    - Production Theory
    - Markets, Competition, perfect, oligopoly, monopoly
2. Health & Economic Development
    - GNP, GDP;
    - Inflation,
- Health & economic Indicators
3. Cost Concepts
    - Unit Cost Analysis (Step down approach)
    - Costing for Intervention Package for Health Care
4. Economic Analysis of Health Sector Projects
    - Cost Benefit,
    - Cost Utility,

- Cost Effectiveness;

- Summary Measures for Health
  - Average and Marginal Cost analysis

5. Health Care Financing
   - Overview of Health Care Financing Concepts in Developing Countries
   - Equity and Financial Fairness/HCF for Poor
   - Economic development and resource allocation: Out of Pocket vs. Government: Development- Non Development; Health Sector Reforms
   - Social Health Insurance
   - Private Health Insurance
   - Community Financing
   - User fees
   - Provider Payment Method
   - Health Insurance Implementation In Pakistan
   - Health Insurance & Islam
   - National Health Accounts

6. Health and Markets
   - Health and Markets: Application of market concepts to Health
   - Why Health is a Case of Market Failure
   - Government and Health Care
   - Managed Care
7. Globalization of Health
   - The International Health Market: Providers, Purchasers,

Pharmaceuticals

- Priority Setting in Developing countries
- International Resource flows: Developing countries & Health

Teaching Methodology:

The teaching methodology for this course will consist of lectures, classroom exercises, assignments, presentations, role play and discussions

Recommended Readings:

1. Creese A, Parker D (eds.). Cost analysis in primary health care: a training manual for programme managers. Geneva: World Health Organization in collaboration with the United Nations Children's Fund and the Aga Khan Foundation; 1994.
2. Donaldson C, Gerard K. Economics of health care financing: the visible hand, 2nd edition. Basingstoke, UK: Palgrave Macmillan; 2004.
3. Drummond M, McGuire A. Economic evaluation in health care: merging theory with practice. New York, NY: OxfordUniversity Press; 2001.
4. Drummond MF, O'Brien B, Stoddart GL, Torrance GW. Methods for the economic evaluation of health care programmes, 2nd ed. Oxford: Oxford University Press; 1997.
5. Feldstein PJ. Health care economics. New York, NY: John Wiley & Sons, Inc; 1979.
6. Gold MR, Siegel JE, Russel LB, Weinstein MC (eds.). Cost effectiveness in health and medicine.New York, NY: OxfordUniversity Press; 1996.
7. Government of Pakistan. Economic survey of Pakistan 2005-2006.Islamabad, Pakistan: Government of Pakistan, Finance Division; 2006. Available from: URL: http://www.finance.gov.pk/survey/home.htm
8. McDonald R. Using health economics in health services: rationing rationally? Buckingham: Open University Press; 2002.

9. McPake B, Kumaranayake L, Normand C. Health economics: an international perspective. London, UK: Routledge Publishers; 1997.
10. Mills A, Lee K. Health economics research in developing countries. Oxford: OxfordUniversity Press; 1993.
11. Mishan EJ. Cost-benefit analysis: an informal introduction, 4th ed. London, UK: Unwin Hyman Ltd; 1988.
12. PrekerAS, Carrin G. Health financing for poor people: resource mobilization and risk sharing. WashingtonDC: The World Bank; 2004.
13. Spasoff RA. Epidemiologic methods for health policy. New York, NY: OxfordUniversity Press; 1999.
14. Witter S, Ensor T, Jowett M, Thompson R. Health economics for developing countries: a practical guide. London, UK: Macmillan Education Ltd; 2000.
15. World Health Organization. Macroeconomics and health: investing in health for economic development — reportof the Commission on Macroeconomics and Health, World Health Organization. Geneva: World Health Organization; 2001. Available from: URL: http://whqlibdoc.who.int/publications/2001/924154550X.pdf
16. Zaidi SA. Issues in Pakistan's economy.Karachi, Pakistan: OxfordUniversity Press; 1998.
17. Zaidi SA. The political economy of health care in Pakistan. Karachi, Pakistan: Vanguard Books (Pvt.) Ltd; 1988.

Students' Evaluation:

Formative (20%)

Ongoing assessment through class participation and class exercises

Summative Assessment (80%)

Summative assessment consist of: MCQs and Short essay questions

C5-S3 Quality Management in Health services

Course Credits:2

Introduction:

Pakistan has one of the best knitted network health care facilities in public sector. These facilities mostly, face the problems of underutilization and under functioning along with the technical and allocative inefficiency. The management of private sector has also been considered inefficient and not very effective. Specific Management tools and techniques, such as strategic management, management by objectives, quality assurance methods, monitoring and evaluation of the health systems outputs and outcomes, and economic appraisal are not practiced. Insufficient management knowledge, in appropriate attitude and skills are reducing the capacity to improve the system.

Learning Goal:

The overall goal of the course is to enable the participants to describe the principal concerns in Health Systems management in order to improve the management capacity of health managers in terms of their knowledge, attitude and skills.

Learning Objectives:

By the end of the course, the participants will be able to:

1. Define management that encompasses the main aspects of problem-solving typically faced by health managers;
2. Define and describe essential concepts, principles, methods and terms in management;
3. Apply certain techniques in the resolution of selected management issues and

4. Describe basic methods of quantitative analysis being used by health managers.
5. Demonstrate change management, communication and leadership skills.
6. Define what quality means from the standpoint of the variety of stakeholders.
7. Explain the relationship of cost and quality.

Contents:

The following areas will be covered during the course:

1. Introduction to Health System and Scope of Health Systems
2. Managing Health System for Better Outcomes, Global Issues and Priorities for Pakistan
3. Management: Traditional and Contemporary Issues and Challenge
4. Management and the Manager's Job
5. An Introduction to Systems, Client Orientation, Process Analysis, Problem Identification
6. Evidence-based decision making
7. Use of HMIS in HSM
8. Supportive supervision &leadership
9. Capacity building in human resource management
10. Introduction to Human Resource Management: Competencies and Job Description
11. Challenges resolution techniques, staff motivation and performance appraisal
12. Functional and Task Analysis
13. Functional and Task Analysis: Exercise
14. Monitoring and Evaluation

15. Introduction to Financial Management
16. Performance Budgeting and Analysis in HSM
17. Financial Management in HSM
18. Financial Management in HSM: Exercise
19. Logistics Cycle in HSM
20. Quality Management
21. Quality Management:Exercise
22. Tools for Quality Assessment / improvement
23. Tools for Quality Assessment / improvement: Exercise

Teaching Methodology:

Lectures, discussions, assigned individual and group exercises, Role plays

Recommended Readings:

1. Amonoo-Lartson R, Ebrahim GJ, Lovel HJ. District health care: challenges for planning, organization and evaluation in developing countries, 2nd ed. Hong Kong: Macmillan Press; 1985.
2. Chanawongse K. Understanding primary health care management: from theory to practical reality. Bangkok: Buraphasilp Press; 1990.
3. Gourlay R. Training manual on health manpower management (8 volumes). Geneva: Division of Health Manpower Development, World Health Organization; 1988. Document no. WHO/EDUC/88.195.
4. McMahon R, Barton E, Ross F. On being in charge: a guide to management in primary health care, 2nd ed. Geneva: World Health Organization; 1992.
5. Reinke WA. Health planning for effective management (HPEM).New

York, NY:OxfordUniversity Press; 1988.

6. Shortell SM, Kaluzny AD. Health care management, 3rd ed. Albany, NY: Thompson Delmar Learning; 2000.
7. World Health Organization. The world health report 2000: Health systems – improving performance. Geneva: World Health Organization; 2000. Available from: URL: http://www.who.int/entity/whr/2000/en/whr00_en.pdf

Students' Evaluation:

Formative (20%)

Ongoing assessments, group works and exercises and an end of course test.

Summative Assessment (80%)

Session examination

Semester IV

Semester IV: Practicum & Elective Attachments* (Credits 12) C-S-4

Courses	Credits
Practicum: Report writing & Presentation	4
Dissertation writing	8

1. C-1-S-4 Practicum : Report Writing and Presentation

Course Credit:2`

Introduction:

Public health focuses on monitoring, achieving and improving the health of a population and is practiced in a variety of settings. The public health professional applies knowledge and skill from the core content areas of public health (biostatistics, epidemiology, environmental health, health services management, and social and behavioral sciences) to design, manage and evaluate solutions to public health problems. Using the practicum (on-the-job assignment) as the "organizational laboratory," the Master of Public Health (MPH) student begins to develop the necessary skill sets for becoming a successful public health professional. The practicum is intended to develop direct understanding and experience in public health or health promotion organizations, thereby exposing the student to organizational cultures, management systems, operations and resources, programs and services and target populations. Such knowledge, skills, abilities, and experiences will continue to develop and grow as each student graduates and becomes a life-long learner and practitioner of public health.

Before the attachments there will be brief sessions on

- District Health Systems
- District Health Government - new initiatives.
- Guidelines for District Health Attachments
- Role of Hospital in a community
- Hospital Planning and Organisation
- Clinical, nursing and special services
- Autonomy and new initiatives.

- Guidelines for Hospital Attachments

At the end of practical attachment, students will present a report, covering either one or both areas, as assigned by the course coordinator.

Learning Goal:

The goal of the practicum is to provide a structured and supervised opportunity for the student to apply the theories, principles, knowledge and skills of public health and health promotion, as learned in the classroom, in a practice setting. The practice experience occurs in a carefully-selected health services organization approved by the MPH Program Coordinator and is supervised by faculty and an immediate supervisor/mentor. This takes into account the transition from education to professional practice.

Learning Objectives:

The objectives of the practicum (on-the-job assignment)are to:

- Provide a practice setting for the student's application and integration of the core public health knowledge.

- Prepare the student with inter-disciplinary skills and competencies, including leadership, communication, professionalism, cultural proficiency, program planning and assessment and systems thinking.

Upon successful completion of this course, each student will be able to:

Leadership

- Create and communicate mutually-established project goals and objectives.

Communication

- Demonstrate the ability to give, solicit, and receive oral and written information.
- Prepare relevant, integrated, and comprehensive written project report(s).
- Use various communication methods and media to complete project activities.

Professionalism and Cultural Proficiency

- Demonstrate the ability to manage time and prioritize workload.
- Display professionalism, sensitivity, and tact in an organizational/community setting.
- Interact productively with supervisors, colleagues, and community stakeholders.

Program Planning and Assessment

- Plan, manage, and monitor a project plan in order to meet established goals and deadlines.
- Prepare a written proposal for project approval from internal and external sources.
- Identify, collect, and analyze data for a practical public health issue or concern.

Systems Thinking

- Assess the roles and responsibilities within a public health organization.
- Describe the interactions and inter-dependencies among various public health organizations.
- Demonstrate and integrate knowledge of core public health concepts into a practice setting.
- Evaluate methods of instruction and learning.

Prerequisites and Requirements:

- Students must have completed all the course work and defended the dissertation before registering for the practicum.
- In consultation with the practice site or organization, the student must develop a short, formal proposal of the work or project to be accomplished by the student during the assignment.
- The student will complete 160 hours of public health practicum experience with the selected organization.
- The student will write a well-constructed report (10 — 15 pages, excluding appendices) detailing their experience, referencing and integrating core public health knowledge.
- The student will be evaluated by an immediate supervisor/mentor of the participating organization.

Role of Immediate Supervisor/Mentor

- The immediate Supervisor/Mentor is responsible for the student's learning during the practicum.
- The immediate Supervisor/Mentor serves as a role model for the student and advises the student routinely.
- The immediate Supervisor/Mentor periodically consults with responsible faculty on the student's progress.
- The immediate Supervisor/Mentor completes a student evaluation form at the end of the practicum.

Role of MPH Program Coordinator

The MPH Program Coordinator serves as the liaison between the student, the immediate supervisor/Mentor, and the University. He/she assists in the selection of participating organizations and maintains communication with the student and immediate Supervisor/Mentor

throughout the practicum. The MPH Program Coordinator determines the completeness of assignments and assigns the course grade.

Course Evaluation

Dissertation

The course is graded on a Pass/Fail basis; the final grade will be determined by the MPH Program Coordinator and will be based on each student's performance on the following criteria:

Evaluation Criteria	Relative Weight
Immediate supervisor/Mentor/ Mentor Evaluation	**40%**
Student Executive Summary and Internship Report	**60%**

To demonstrate application of public health knowledge and skills, summarize accomplishment of established goals, and assure accountability during the field experience, each student intern is required to prepare and submit a report based on the following format.

2. C-2-S-4 Dissertation Writing

CREDIT HOURS: 4

Introduction:

The exposure to community-based and health systems research is an essential element that the current MPH programme supports to fulfill. This helps in the conceptualization of this research experience and converting it into a scientific write-up to complete the requirements for the third session of MPH programme.

The document serves to assist students in understanding the section of the topics for research, write the proposal for approval by 's Institutional Review Board (IRB) and the funding agencies. Dissertation writing is required from each student of MPH to generate a meaningful academic product that demonstrates the student's application of crucial knowledge and skills including:

- Aspects of relevant disciplines like epidemiology, biostatistics, qualitative research methods etc.
- Conceptual framework for the working hypothesis or research question.
- Research objectives, hypotheses and research questions formulation in measurable terms.
- Study design, study population and selection processes correctly according to the objectives.
- Interpretation and analysis of data in support of a decision or conclusion.
- Correctly written bibliography.
- Oral and written communication and presentation of the product.
- Development of and adherence to a schedule/time frame.

- Formulation of a realistic budget and its defense.

Every student is required to show substantial work done under the supervision of the academic advisor.

The following sections provide detailed guidelines for dissertation writing.

Dissertation:

The dissertation requires the generation of new applied knowledge through the comprehensive application of the research process. The thesis option is a better choice for students who desire to gain confidence in their ability to plan, conduct, and write a research work and wish to gain confidence in their ability to critically apply existing knowledge and methods to the solution of a problem in public health.

Given the inherent complexity of activities and time demands, 10 credit hours of research are allocated for a dissertation.

The topic for research will be chosen in consultation with the academic advisor.

Overview:

By completing their dissertations MPH students are able to demonstrate their understanding of core competencies through the successful application of core knowledge and principles, critical thinking and analytic reasoning skills.

The student is advised to select a topic for research consistent with his/her professional requirements while going through the course on Research Process Part I during the first and second session. In the beginning of third session, the student will be guided to complete the research tools and complete the proposal in light of the training during the classwork.

Students are advised to plan ahead for each step. The proposal formulated has to be critically appraised by the Academic Council of the and simultaneously the Institutional Research Board (IRB) within 3 weeks of the third session which is before the student is allowed to start with the data collection. The committee can suggest changes which will be communicated to the student at the time of critical appraisal.

The students will carry out data collection, data analysis, interpretation and presentation of the results leading to conclusions from the study under the dissertation writing guidelines during the third session (see below).

The Examiners (one internal and one external) for the viva voce examination will be approved by the University's Controller of Examinations. This process has to be started atleast 6 weeks before the exams are scheduled. The examiners should be provided the written dissertation at least 15 days in advance of the scheduled defense.

It is the institutional responsibility to identify the examiners, coordinate a time that is acceptable to all members; to arrange for any needed audio-visual support, and to ensure that the examiners are notified of the location of the defense.

Proposal Format:

Proposal for the Dissertation: The proposal submitted for a dissertation should follow the outline listed below. The outline corresponds to the major chapters expected in a thesis. Deviations from the content in this outline should be discussed and approved by the advisor (and committee in advance of submitting the proposal for the defense).

Introduction

(a) Establish importance of topic

(b) Conceptual model/relationship of independent and dependent variables

(c) Summary of what is/is not known

(d) What gap the study is filling

(e) Statement of research purpose(s)

Aims and Objectives/Hypotheses or research questions including operationaldefinitions

Material and Methods

(a) Study design

(b) Duration of study

(c) Study population

- Sampling methods
- Sample size/power
- Sample recruitment: Inclusion and Exclusion criteria

(d) Data Collection Procedure: Identify the recruitment of the population to the collection of :

- Variables
- Measurements

i. instruments (include copies of relevant instruments (surveys, etc) as appendices)
ii. standards
iii. reliability
iv. validity

(e) Data analysis plan (including software to be used and tables if applicable)

Rationale of the study

Human Subject Protection*

i. Informed Consent Procedures
ii. Confidentiality
iii. Risks
iv. Benefits
v. Permission to access data (if applicable)

*should also attach an approval by the IRB.

References listing

Reference listing is to be done at the end of the proposal. (Thereferences should consist of at least 6 references from not older than last 5 year; preferably from the published articles and only occasionally from the books).

Timeline

A timeline should be attached as an annexure.

Proposed budget

A proposed budget should be given at the end of the proposal.

Outlines for the Dissertation:

Part I: Consisting of:

(a) Title page with the name of the student and the programme they are working under,

i.e. name and MPH with year.

(b) Declaration duly signed by the Advisors/Supervisors

(c) Acknowledgements

(d) Table of Contents

(e) List of Tables/Figures with page numbers

(f) List of Abbreviations used

All pages are to be given Roman numerals before the summary.

Summary

A structured summary should be the first part of the dissertation write up. Introduction, Objectives, material and methods: Study design, duration, sample population including sampling techniques, sample size and sample selection and statistical analysis. Brief results and conclusions. Key words: 3-5 words best describing the study.

Part II

Introduction

It shall cover:

(f) Establish importance of topic

(g) Conceptual model/relationship of independent and dependent variables

(h) Summary of what is/is not known

(i) What gap the study is filling

(j) Statement of research purpose(s)

Literature Review

It shall cover:

(a) General overview

(b) Theoretical models/conceptual frameworks

(c) Relationships among variables

(d) Other relevant literature

a. Aims and Objectives (research questions)

Material and Methods

(a) Study design

(b) Duration of study

(c) Conceptual models/conceptual frameworks

(d) Study population

i. Sampling techniques

ii. Sample size/power

iii. Sample recruitment: Inclusion and Exclusion criteria

Data Collection Procedure*

Identify the recruitment of the population to the collection of:

i. Variables: how measured

ii. Measurements: how performed?

iii. instruments*: questionnaires etc.

iv. reliability

v. validity

*include copies of relevant instruments (surveys, etc) as appendices.

Data analysis plan

How was the data analyzed? Procedures for statistical application and statistical software/s used should be outlined in sufficient details

Ethical Considerations

Consent form must be attached as an Annexure. Ethical clearance should be attached from the IRB. Informed Consent Procedures: Consent Form.

Results

This chapter includes presentation of results as tables, figures etc. based on the statistical applications and not as computer outputs. The results should be described in adequate details indicating the major findings. The

results should be in line with the objectives of the study. The results should be on separate pages; one table/figure on one page. Same tables cannot be replicated as figures.

Discussion

In this chapter a detailed discussion of the results and comparisons with other study reaching to a conclusion in accordance will be made.

Conclusions

The conclusions should be in line with the objectives and the results.

References

The reference list consists of published articles not older than 5 years unless required for the work. References from books are not the preferred method. The number of references should not be less than 30. Vancouver style is the recommended method of referencing.

The pages should be numbered from (Introduction to references) in **Arabic numerals**.

Defense Process:

The defense begins with administrative/introductory remarks by the Chair who will review the process and procedures for the defense, including any ground rules set forth for the specific defense with the internal and external examiners. The student will then make a prepared 10-15 minute (proposal) or 20-25 minute (dissertation) presentation which summarizes the proposal/dissertation.

The Chair will announce in advance whether questions may be asked during the presentation or held to the end. Normally, clarifying questions will be permitted during the presentation with probing/analytic questions following the presentation.

Following the formal presentation and clarifying questions, questioning/critiquing by the Examiners then begins. For the proposal defense, emphasis is on the suitability of the proposed research/project and the design/methods/analytic plan/approach. For the final defense, emphasis is on the results, lessons learned, and implications.

In both cases, questions related to application of core competencies may be asked, even if they are per or in relation to the proposal/dissertation under review. The session concludes when the examiners have finished questioning or

the allotted time has elapsed. Fifteen minutes at the end of the session are reserved for the Examiners' deliberations and finalizing of their results. The student may be excused from the room while the Examiners deliberate. The students will be informed of the formal results after approved by the University, Controller of Examinations.

Presentation Evaluation:

Effective presentation and oral communication skills are core competencies expected of MPH graduates. Consequently, separate from the content assessment of the proposal/dissertation, the Examiners will evaluate the student's presentation skills. During

the proposal defense, the assessment will be used to advise the student of perceived strengths and weaknesses and recommended actions to ensure a strong presentation during the final defense (diagnostic). For the dissertation defense, the examiners will formally assess the student's presentation/oral communication skills (evaluative). Successful mastery of the communication skills is a requisite for passing the defense.

Outcomes:

There are 3 possible outcomes for a defense (be it proposal, thesis, or project): unconditional pass, and conditional pass, and fail.

- **Unconditional Pass** is associated with consensus scores of 3 or more in all areas. It may, however, include requests for minor revisions which are reviewed and accepted by the advisor on behalf of the Committee.
- **Conditional Pass (Result Later On)** is associated with a score of 2 or less in one or more areas where the shortcomings may range from being technical in nature, easily corrected, and/or for which the student demonstrates understanding during the defense to more substantive issues ranging from general weakness to a critical weakness in a specific area. The student works with the advisor to correct the deficiencies identified by the examiners. The revisions will be accepted by the examiners and notified to the University.
- **Fail** is associated with poor performance and evidence of gaps in knowledge and critical reasoning skills during the defense. The deficiencies are such that the Examiners wish to see a re-defense of the revised dissertation/proposal. (Students are permitted only one re-defense of the Dissertation. Students work with their advisor and committee to correct any deficiencies in the proposal/manuscript and other areas as needed prior to scheduling a re-defense. The date of re-defense will be notified in one month's time to the student.

Proposal Critique and Evaluation Guidelines

The Proposal manuscript (synopsis) is evaluated to ensure it adequately demonstrates core competencies and the correct application of a specific set of competencies to the research of a public health problem.

Demonstration of Core Competencies: Evaluation Guidelines

The primary educational objective of the dissertation is to demonstrate appropriate consideration and application of core concepts, skills, and knowledge in analyzing a public health problem within any of the proscribed frameworks. The core area competencies must be addressed in each project.

These competency areas cut across the domains identified for each specific framework. For example, quantitative competence may be demonstrated in the literature review and/or methodology section and/or results and/or discussion section of a publication framework. All papers are required to demonstrate minimum competence, but are held accountable to a level of competence consistent with the problem and framework as defined by the student. An example of this is when a student refers to an advanced statistical analysis in his/her design. Although the statistical test may exceed the competence expected of a graduate, by virtue of having introduced it, that student is accountable to correctly describe and apply it.

1. **History:** Appropriate and sufficiently thorough consideration of relevant historical information surrounding the problem ranging from trend information to assessments of previous efforts and related research

2. **Quantitative Sciences (assessment/analysis):**Appropriate and sufficiently thorough consideration of epidemiology, demography, vital statistics, and biostatistics (analytical planning, sample size, etc.)

3. **Biological considerations (determinants):** Appropriate and sufficiently thorough consideration of biologic concepts (genetics, physiology, immune response, life cycles, processes such as aging, growth, and development, and physiologic measurements)

4. **Social/cultural/behavioral considerations (determinants):**

Appropriate and sufficiently thorough consideration of socio-cultural and behavioral factors which directly or indirectly impact on the problem under consideration

5. **Environmental and/or occupational considerations (determinants/ impacts):**Appropriate and sufficiently thorough consideration of the role and interaction of the physical environment — which can include both the physical and natural environment.

6. **Management and/or policy and/or resource utilization considerations:** Appropriate and sufficiently thorough consideration of management precepts ranging from the domains of administration to leadership to financial planning (budgeting) to policy setting to implementation and planning (logistics).

Dissertation Competency: Evaluation Guidelines

The following are some guidelines for evaluating dissertations.

1. Importance of the problem to public health
   - has the magnitude of the problem been characterized?
   - is a case made for its importance?
2. Organization/ Presentation
   - easy to read/understand
   - quality of tables and figures
   - logical progression of ideas
   - conformity with guidelines of target publication/standard format
3. Abstract appropriately structured and an adequate reflection of paper's content
4. Introduction places the current study in the context of current knowledge
   - quality/thoroughness of literature review
   - demonstrates where this project fits in
5. Design appropriate to answer the question
   - consideration given to options

- rationale given for choosing design
- strengths and limitations inherent in design discussed (validity)
- strengths and weaknesses of measurements (reliability)

6. Population appropriate to answer the research question

- considerations/advantages/disadvantages of choice

7. Analysis appropriate to answer the question

- methods described; limitations noted
- plan sufficient to address research question
- level of data collection/coding sufficient
- confounding/interaction/bias/design limitations accounted for
- issues of power sample size addressed

8. Plausibility of results appropriately addressed
9. Public health implications appropriately addressed
10. References complete and adequately reflecting current literature on the topic; peer- reviewed sources provide adequate support for assumptions or background information.
11. Overall scientific merit
    - is the study design appropriate to the stated objectives?
    - is the appropriate level of data used?
    - has an appropriate literature review been included?
    - does the project increase our understanding or to replicate inconclusive/controversial findings?

Dissertation Critique and Evaluation Guidelines

1. Executive Summary

Briefly summarizes problem, magnitude, key determinants, recommended course of action

2. Statement of Problem

- Was the problem clearly identified and defined?
- Is it an appropriate/relevant public health problem?
- Is the group/organization/agency selected to hear the argument appropriate?

3. Magnitude of the problem

- Is the magnitude of the problem clearly identified?
- Are the strengths and limitations of the measures/estimates discussed?
- Does the paper make a compelling case that the problem is significant enough to warrant attention?

4. Key Determinants

Are the appropriate biological, behavioral, and environmental determinants of the problem addressed?

5. Prevention/Intervention Strategies

- Are current efforts summarized?
- Are a sufficient breadth of options/strategies considered?
- Do the options follow from the key determinants discussed?

6. Policy & Priority Setting

- Are the relative advantages and disadvantages of each option/strategy considered?
- Are the benefits/risks compared at individual, community, and societal levels?
- Are political, economic, and technical feasibility considered?

7. Recommendations

Are the recommendations consistent with the analysis of the problem?

8. Implementation and Practice

- Are the likely barriers to implementation addressed?
- Are logistical/technical/resource concerns addressed?

9. Evaluation

- Is the impact of the proposed intervention measurable?
- Is 'success' defined?
- Are provisions made for evaluating the impact of the recommended course of action?

10. Overall Impression

Is a compelling argument made that would convince you to adopt the recommended strategy? Is the argument presented succinctly and effectively?

ANNEXURES

Practicum (On-the-Job Assignment) Report

TITLE PAGE

EXECUTIVE SUMMARY

Concisely describes the practicum and the salient results and conclusions.

TABLE OF CONTENTS

2.4 Timeline (outline of key project activities/dates)

3.0 RESULTS

4.0 DISCUSSION AND CONCLUSIONS

(Feel free to add any other relevant items or issues in any section of your report.)

Immediate Supervisor/Mentor Evaluation of Student

MASTER OF PUBLIC HEALTH PROGRAMME
PRACTICUM (ON-THE-JOB ASSIGNMENT) EVALUATION BY IMMEDIATE SUPERVISOR/MENTOR

Thank you for your sponsorship of this student. Please complete this evaluation form. The information will be useful in preparing this student for future work and help us enhance the MPH Program.

STUDENT'S NAME: _____

IMMEDIATE SUPERVISOR'S/ MENTOR'S NAME: _____

TITLE: _____

DATE: _____

ORGANIZATION: _____

Using the rating scale below, please circle the student's level of performance during the practicum on the criteria listed below:

1 = Exceeded expected performance level

2 = Met expected performance level

3 = Failed to meet the expected performance level

NA = Not applicable

Criteria	Rating			
Student met agreed-upon time commitment.	**1**	**2**	**3**	**NA**
Student was dependable and responsible in carrying out assignments and duties.	**1**	**2**	**3**	**NA**
Student functioned well within the organization.	**1**	**2**	**3**	**NA**
Student functioned well with community stakeholders	**1**	**2**	**3**	**NA**

and/or clients.

Student was able to identify sources of data and information required for the practicum.	**1**	**2**	**3**	**NA**
Student was able to analyze and/or synthesize data and information.	**1**	**2**	**3**	**NA**
Student completed the necessary background research.	**1**	**2**	**3**	**NA**
Student completed assignments/projects in the agreed-upon time frame.	**1**	**2**	**3**	**NA**

Criteria	Rating			
Student's written work was completed and well prepared.	**1**	**2**	**3**	**NA**
Student had the necessary knowledge and skills for this practicum.	**1**	**2**	**3**	**NA**
Student conducted him/herself in a professional manner.	**1**	**2**	**3**	**NA**
Student worked well with others.	**1**	**2**	**3**	**NA**

Comments

Please provide comments on the following items.

1. Any of the previous criteria on which the student was rated as 3 (Failed to meet expected performance level):

2. Your overall impression of the student's work on this practicum.

3. Any areas where the student's academic preparation for assigned work could be improved.

4. How useful the practicum was for your organization.

5. Would you be willing to sponsor another student of the MPH Program?

IMMEDIATE SUPERVISOR'S/MENTOR'S SIGNATURE:

_____

DATE: _____