

MASTER IN PUBLIC HEALTH (MPH)

INTRODUCTION

The solutions to many current global public health problems require practitioners who are highly trained and specialized in specific aspects of public health. That specialized training should strive to provide the student with the requisite knowledge base, inculcate appropriate attitudes and develop skills in collection, collation of information, formulation and presentation of views. It should also develop the capacity for independent thought, creativity, capability and skills effective in information dissemination with a view to finding practical solutions to public health problems. The Master of Public Health (MPH) programme prepares professionals for leadership roles in the management, improvement, and evaluation of health, health interventions, and the health care system.

OBJECTIVES

The MPH programme provides a comprehensive preparation of students to address the various challenges of public health. At the end of the programme, graduates should be able to:

- (a) Apply the necessary skills as public health professionals for local and international careers as managers and policy makers.
- (b) Provide a broad-based repertoire of knowledge, attitudes and skills for the diagnosis and analysis of public health issues.
- (c) Plan, manage and evaluate various public health programmes.
- (d) Provide an understanding and application of the principles of disease prevention and health promotion in the development of public health intervention strategies.

ADMISSION REQUIREMENTS

To qualify for admission into the Master Degree candidates shall be.

- (a) Holders of at least an upper second-class honours degree from Jaramogi Oginga Odinga University of Science and Technology or any recognised university in the discipline that is relevant to the applicants area of specialisation.

- (b) Holders of lower second class honours degree from any recognised University evidence in the areas mentioned in 3(a) above or evidence of extensive research experience as demonstrated by publication in peer-reviewed journals.

In addition to the above, applicants must meet the specific requirements of the Master Programme as approved by the senate.

CREDITS TRANSFER

- (a) A candidate may be exempted from some course units and credit (S) transferred from institutions recognized by the senate, subject to the following conditions:
- (b) Must have passed in similar course units at Master's level. Request for exemption should be made in writing to the Director, Board of Postgraduate Studies through the Dean of the School of Health Sciences and must be accompanied by officially endorsed supporting documents.
- (c) Candidates may be allowed to transfer up to one-third (1/3) of total number of course units.
- (d) Application for transfer will be processed only after payment of the prescribed fees.

COURSE STRUCTURE AND DURATION

The duration of the programme shall be a minimum of two (2) academic years (4 semesters). An academic year is divided into two semesters, each comprising 16 weeks. The programme shall be by coursework, examination and thesis. The coursework will be covered during the first academic year of study while research and thesis will be undertaken in the second year of study.

Course shall be offered in units. A course unit is defined as that part of semester subject described by coherent syllabus and taught normally over a period of a semester. It is designed as total of 42 hours of study in semester. For this purpose, one 1-hour lecture is equivalent 2-hours tutorial or 3-hours practical or any combination as may be approved by the Board of the School of informatics and Innovative system. All course units will be taught for a total of 42 contact hours, including examinations except project work which will take 480 hours of practical attachment.

The programme designed offers training leading to the award of the degree of Master of Public Health (MPH), with options in the following areas: Monitoring and Evaluation, Health Systems Management and Health Policy, Epidemiology and Disease Control, Health Promotion, Reproductive and Sexual Health, Occupational Health and Safety and Human Nutrition. Options for each year will be advertised depending on faculty available for that year.

EXAMINATIONS REGULATIONS

Jaramogi Oginga Odinga University of Science and Technology Senate Examination rules and regulations shall apply.

LIST OF COURSES

YEAR ONE SEMESTER ONE

COURSE CODE	COURSE TITLE	Contact hours			Weight (Unit)
		Lecture	Practical	Total	
HMP 5111	Principles of Public Health	42	0	42	1C
HMP 5112	Principles of Epidemiology	28	14	42	1C
HMP 5113	Social Dimensions of Health	42	0	42	1C
HMP 5114	Biostatistics	28	14	42	1C
HMP 5115	Research Methods	28	14	42	1C
HMP 5116	Health Care Organization and Management	42	0	42	1C
	Total	210	42	252	6

YEAR ONE SEMESTER TWO:

OPTIONS *STUDENTS TO TAKE ALL COURSES IN THEIR OPTION*

OPTION 1: MONITORING AND EVALUATION

COURSE CODE	COURSE TITLE	Contact hours			Weight (Unit)
		Lecture	Practical	Total	
HMP 5121	Demography and Health	28	14	42	1R
HMP 5122	Reproductive Health Epidemiology	28	14	42	1R
HMP 5123	Quality Control and Assurance	28	14	42	1R
HMP 5124	Programme Monitoring and Evaluation	28	14	42	1R
HMP 5125	Health Management Information System	28	14	42	1C
HMP 5126	Epidemiologic Methods	28	14	42	1C
	Total	168	84	252	6

OPTION 2: HEALTH SYSTEM MANAGEMENT AND HEALTH POLICY

COURSE CODE	COURSE TITLE	Contact hours			Weight (Unit)
		Lecture	Practical	Total	
HMP 5127	Health Economics	42	0	42	1R
HMP 5128	Health Policy and Planning	42	0	42	1R
HMP 5125	Health Management Information System	28	14	42	1C
HMP 5129	Population, Health and Development	42	0	42	1C
HMP 5131	Project Management and Evaluation	42	0	42	1C
HMP 5132	Health Care Financing	42	0	42	1R
	Total	238	14	252	6

OPTION 3: EPIDEMIOLOGY AND CONTROL OF DISEASES

COURSE CODE	COURSE TITLE	Contact hours			Weight (Unit)
		Lecture	Practical	Total	
HMP 5126	Epidemiologic Methods	28	14	42	1C
HMP 5133	Non-communicable Disease Epidemiology and Control	28	14	42	1R
HMP 5134	Communicable Disease Epidemiology and Control	28	14	42	1R
HMP 5135	Disease Surveillance and Outbreak Investigation	28	14	42	1R
HMP 5136	Statistical Methods in Epidemiology	28	14	42	1R
HMP 5137	Preventive Medicine	28	14	42	1C
	Total	168	84	252	6

OPTION 4: HEALTH PROMOTION

COURSE CODE	COURSE TITLE	Contact hours			Weight (Unit)
		Lecture	Practical	Total	
HMP 5138	Theory and Principles of Health Promotion	42	0	42	1R
HMP 5139	Human Behaviors and Health	42	0	42	1R
HMP 5141	Health Promotion and Practice	42	0	42	1R
HMP 5128	Health Policy and Planning	42	0	42	1R
HMP 5131	Project Management and Evaluation	28	14	42	1C
HMP 5137	Preventive Medicine	28	14	42	1C
	Total	224	28	252	6

OPTION 6: OCCUPATIONAL HEALTH AND SAFETY

COURSE CODE	COURSE TITLE	Contact hours			Weight (Unit)
		Lecture	Practical	Total	
HMP 5146	Occupational Health Services and Safety	42	0	42	1R
HMP 5147	Principles of Occupational Hygiene	42	0	42	1R
HMP 5148	Occupational Health Epidemiology	28	14	42	1R
HMP 5149	Occupational Ergonomics	42	0	42	1R
HMP 5126	Epidemiologic Methods	28	14	42	1C
HMP 5137	Preventive Medicine	28	14	42	1C
	Total	210	42	252	6

OPTION 7: HUMAN NUTRITION

COURSE CODE	COURSE TITLE	Contact hours			Weight (Unit)
		Lecture	Practical	Total	
HMP 5151	Principles of Human Nutrition	42	0	42	1R
HMP 5152	Principles of Nutritional Assessment	42	0	42	1R
HMP 5153	Nutrition and Primary Health Care	42	0	42	1R
HMP 5154	Policy in Food and Nutrition	42	0	42	1R
HMP 5126	Epidemiologic Methods	28	14	42	1C
HMP 5137	Preventive Medicine	28	14	42	1C
	Total	224	28	252	6

YEAR TWO SEMESTER ONE

COURSE CODE	Course Title	Contact Hours			Weight (Units)
		Lecture	Practical	Total	
HMP 5211	Practicum	0	42	42	1R

YEAR TWO SEMESTER ONE & TWO

Course Code	Course Title	Contact Hours			Weight (Units)
		Lecture	Practical	Total	
HMP 5222	Thesis	0	960	960	1R

COURSE DISTRIBUTION

YEAR ONE SEMESTER ONE

HMP 5111: PRINCIPLES OF PUBLIC HEALTH

42 HOURS

Principles and key concepts in public health: primary, secondary and tertiary prevention. Community participation, equity, access, lobbying, gender, and empowerment. Historical development of public health: The Biomedical model and the epidemiological transition model: their influence on public health. Evolution of Public Health in Kenya. Public Health concerns and determinants of health: nutrition, environment, occupational hazards, changing lifestyles, population dynamics. Public Health Strategies: surveillance, intervention, evaluation, Primary Health Care. Organization of Public Health: Government, Non governmental public health agencies. Impact of environmental changes on health: pollution; development and health: dams, industry, agriculture; waste disposal, climatic changes/ global warming, sanitation and hygiene. Medico-legal issues: Public health and Law; Environmental legislation: the Factories and Other Places of Work Act; the Public Health Act, public health and law.

HMP 5112: PRINCIPLES OF EPIDEMIOLOGY

42 HOURS

Definition, the scope, variations in severity of disease, models of disease causation. Epidemiological aspects of infectious disease: host-parasite relations, transmission mechanisms, types of epidemics, common-source, person to person spread of infectious disease, outline of investigation of an epidemic. Definitions: outbreaks, epidemic, incubation period, attack rate. Descriptive epidemiology: Person - age, sex, ethnicity, social class, occupation; place, time measures of morbidity and mortality; incidence and prevalence rates. Classification of causes of death and limitations. Disease determinants; Host, agent and environmental factors; natural history of disease; levels of disease prevention. Screening in the detection of disease and maintenance of health: Criteria for evaluation of screening and screening tests; principles underlying screening programmes. Vaccination: clinical and immunological aspects, schedules, adverse effects, vaccine efficacy. Sources of data on health status: Census, vital statistics, morbidity data, health record linkages, surveys (cross-sectional); Limitations of routine data. Population and health: Population trends - World, developing countries, Kenya; population dynamics, demographic and epidemiologic transition. Age-specific health care needs.

HMP 5113: SOCIAL DIMENSIONS OF HEALTH

42 HOURS

Definitions, concepts and scope. Implications of social issues to health promotion. Cultural perception of health and disease: perception among different communities, traditional remedies, alternative health care, cultural differences in explanation of etiology, diagnosis and treatment of disease, rites of passage and their implication to health, belief and eating patterns and status of western medicine. Moral philosophy and ethics in health: common errors in ethical argumentation, moral skepticism and ethical subjectivism, ethical consideration of abortion, euthanasia, human cloning, ethics and research, medicine and law, ethical and legal implications of institutional corruption, and Abilene paradox. Poverty, health, and development: structural adjustment, consequences of cost-sharing to health services accessibility, status of health in national development planning, food security and economic growth. Health care equity and relevance. Community behavior change. Problems of substance abuse, hazard control, behavioral risk factor reduction including diet, exercise, smoking stress, and sexual practices, increasing adherence to medical treatments, and improving health services by altering client - provider behaviour. Gender and Health: Anthropological, sociological and psychological perspectives on health. Men, women and children's health. Gender aspects in the health profession.

HMP 5114: BIOSTATISTICS

42 HOURS

Concepts of probability; normal distribution, binomial distribution, Poisson distribution; Bayes' theorem. Types of data. Summarizing and presenting data. Sample size determination. Data analysis: confidence limits and confidence intervals, hypothesis testing; statistical tests; z-score, student t-test, chi-square test, odds-ratio and relative risk. Quantitative and qualitative techniques for describing, assessing and displaying data including patterns of disease morbidity, mortality and disease control measures. Normal, binomial and poisson distributions. Quantative treatment of biological data. Statistical analysis: variability, probability, parametric and non parametric test of significance; Continuous vs. categorical variables, Descriptive statistics. Statistical tests of association and trends: Categorical vs. non-categorical variables and chi-square tests. Relative risks and odds ratios; Data transformation, residuals, outliers, leverage, Influence and cook' distance, F-test, dummy variables, analysis of variance and covariance; Principles of demographic surveys including morbidity and mortality statistics and structure of human populations; Computer statistical packages. Clinical measurements, biometrics and survival data including biometric measurement in health and disease. Application of biostatistics in the evaluation of health services and determination of the impacts of health policy.

HMP 5115: RESEARCH METHODS**42 HOURS**

Definition, nature, use and application. Scientific enquiry; concept, nature of, the process. Types of research. Types of research designs: Descriptive, Analytical, Experimental, Quasi - experimental. Bias; confounding. Research Methods: Qualitative- focus groups, key informants, case studies, interviews, observation. Quantitative – observational, experimental, case studies. Health Services Research: Techniques for monitoring and evaluation of performance; stakeholder analysis; health systems research; operationalization of research. Sampling Methods: simple random, stratified, cluster; sample size determination. Research instruments: questionnaires; interview guides-steps, characteristics and application. Data analyses, interpretation, and presentation. Ethics in Health Research: Confidentiality, informed consent; procedures and processes of ethical approval of research; International and National Guidelines in health research. Proposal development. Report writing. Dissemination of Research findings: methods of dissemination-scientific papers, reports, seminars; use of findings.

HMP 5116: HEALTH CARE ORGANIZATION AND MANAGEMENT 42 HOURS

Management: Meanings, concepts, principles, evolution, theories, functions; process of managing; role of a manager in organizational change. Organization: Meaning, theory and principles; structure and types; authority and responsibility; leadership; delegation; decentralization of authority; aids to organizational design; organizational change and conflict; organizational mission and strategy; organization units of a district health authority; challenges in service organizations. International and National systems: World Health Organization; Kenya Health system, NGOs and private health care systems; influence of international economic order on health care. Personnel management: function; policy; problems and processes; public versus private sector; instruments, procedures and techniques of personnel administration; career and career development; manpower planning and development; Staff appraisal. Organizational Behavior and Structure: group dynamics; conflicts; team building; communication; division of labor in organizational management; concepts of power and politics in organizations; power structures; role analysis techniques; defining the client system; organizational psychology; impact on work performance - psychological stress at work; interpersonal relationships in the work place. Basics of health economics and health financing; scarcity and choice; concepts of health market. Sources of health finances; financing options; financing controls; principles of budgeting and accounting.

YEAR ONE SEMESTER TWO.

OPTIONS - *STUDENTS TO TAKE ALL COURSES IN THEIR OPTION*

OPTION 1: MONITORING AND EVALUATION

HME 5121: DEMOGRAPHY AND POPULATION HEALTH 42 HOURS

Techniques used in demographic analysis for the measurement of fertility, mortality, and population structure and change, including migration in human populations; steps in interpreting basic demographic data; usefulness of a demographic approach for the study of population and health issues; how different types of demographic information may be collected.

Introduction to global population health, including causes of morbidity and mortality, surveillance systems and vital statistics, and trends over time. Overviews of epidemiology of cancer, cardiovascular, infectious, environmental, psychiatric and nutritional diseases. Fundamentals and methods for studying burden of disease in populations, and how these differ across time, space, groups.

HME 5122: REPRODUCTIVE HEALTH EPIDEMIOLOGY 42 HOURS

Reproductive health indicators: morbidity and mortality. Epidemiologic study design and measurement issues in reproductive health. Sources of data in reproductive epidemiology: strengths and weaknesses of sources. Methodologies of data collection and analysis of reproductive epidemiology data. Key study design and measurement issues studies on infertility, birth defects and early reproductive loss, pregnancy-induced hypertension, and low birth weight. Relationship between lifestyle, occupational factors and reproductive outcomes. Key variables for the evaluation of prenatal care. Common pregnancy-induced disorders. Epidemiology of preterm birth. Epidemiology of stillbirth/fetal death, early neonatal death, infant mortality, perinatal mortality and maternal mortality. Evidence-based medical approaches in reproductive health: methodological and ethical features of randomized clinical trials, systematic review or meta-analysis, Cochrane Collaboration. Evidence-based global health issues in reproductive health: developing countries. Concept and public health significance of possible fetal or pregnancy origins of some health problems in later life. Childhood developmental disabilities: obesity, hypertension, type II diabetes, and cardiovascular disease. Public health significance of major reproductive and perinatal problems: importance of epidemiologic studies in developing prevention strategies.

HME 5123: QUALITY CONTROL AND ASSURANCE**42 HOURS**

Fundamentals of quality control and assurance in biomedical sciences and medical practice, setting goal and standards and accreditations; Quality control and assurance of health services: making and maintenance of proper records and evaluating of quality of services, research, laboratory tests (good laboratory practices- GLP) and healthcare delivery systems (good medical practice-GMP); Interpretation of laboratory test data: sensitivity and specificity, predictive value, reproducibility, normal ranges, problems with the laboratory specimens and effects of physiological variables, medication and hospital working procedures; Handling of specimen and their storage for quality assurance; Quality control in the production and packaging of goods, drugs, vaccines and other biomedical products, chemicals, reagents, diagnostics; Role of standardization agents: Kenya Bureau of Standards, Food and Drugs Administrations; Legislation governing use of drugs, dispensing and registration; Legislation, ethical and scientific issues relating to quality control assurance in different countries, regions and organizations.

HME 5124: PROGRAM MONITORING AND EVALUATION**42 HOURS**

Definition; Role of monitoring in program evaluation; Comparing research and evaluation in development projects; Characteristics of monitoring projects; Types and purpose of evaluation; The process of evaluation; Designs of evaluation: participatory, survey and secondary data; Comparing monitoring and evaluation approaches; managing feedback and utilization of evaluation results; Case studies in monitoring and evaluation in development projects. Steps in designing Health and Information Systems and Management Information Systems (HIS/MIS). Quality assurance, Developing and Implementation plan, Mobilization of resources, Monitoring and evaluation, Merits of a functional HIS/MIS, Problems associated with functioning of HIS/MIS, Emerging issues in information technology.

HMP 5125: HEALTH MANAGEMENT INFORMATION SYSTEMS 42 HOURS

Definitions: management information system, data and information; concepts of management information system; data - sources, collection analysis, storage, retrieval; reporting, dissemination, utilization; classification of information; uses of information. Information for hospital administrators: Types of information systems; personnel, financial, facilities and fixed assets; workload and operation; patient care, logistics. Computers and management of information: Existing state of health information systems; conceptual and practical aspects in the analysis, development, and utilization of computer-based information and control systems with

emphasis on application to health care environment. Information for facility management: Range and quality and reliability of health and health service data; assessment of the costs and benefits of information systems; access, security and confidentiality; information personnel and training; systems sustainability. Organization of Hospital Information System (HIS); PHC and hospital information systems; integrated information system; Local Area Network (LAN), monitoring and evaluating a hospital information system.

HMP 5126: EPIDEMIOLOGIC METHODS

42 HOURS

The search for causal relations: Hypothesis generation descriptive and cross-sectional studies.

Epidemiologic studies: Observational studies: prospective approach, prospective studies, retrospective approach, retrospective studies/case-control studies. Search for causal relationship: Evaluation of evidence-association vs. causation. Prospective vs. retrospective studies/advantages and disadvantages. Experimental methods: Clinical trials (therapeutic trials) community trials (prophylactic trials). Confounding bias: Sources of confounding, and strategies in dealing with confounding in observational and clinical studies. Interpretation of results: Differential exposure misclassification, non-differential exposure misclassification, differential disease misclassification, non-differential disease is classification, strategies in dealing with selection bias. Bias in experimental studies: allocation of subjects, random allocation, attrition and strategies for elimination of bias in experimental studies. Appraisal and critique of published papers. Ethical considerations: Confidentiality, consent and principle of no harm to subjects; procedures and process of ethical approval.

OPTION 2: HEALTH SERVICES MANAGEMENT AND HEALTH POLICY

HMP 5127: HEALTH ECONOMICS

42 HOURS

Introduction: definitions, concepts, characteristics of health and health care, types of economic theories, structure of health economics. Health Economics Approaches: The demand & supply curve; features of economic models; utility and production functions, utility maximization; the household production of health: Grossman Model. The agency relationship, the supplier-induced demand. The market and failures; consumer, production, factor markets, demand/supply theory, price, elasticity of demand, equilibrium, disequilibrium, index calculation, tax financing. Purchaser and Provider Split: rationale, contracting, experiences. Hospital as a firm. Hospital as an agent. The theory of firm. Hospital costs: long-run-costs, short-run-costs. Production functions. DRGs and hospital efficiency. Outcome measures. Regulation of health care systems. The theory of regulation. Regulation of demand and supply. International approach methods of regulation. Payment schemes: insurance, taxes, cost sharing, social security.

Managed Care: HMOS, PPOs. The political economy of responsibility in health and illness. Economic Evaluation of Health Care: Economic tool-box: micro economic models and statistical tools; features of economic analysis; Incremental analysis; economic evaluation methods (Cost of Illness, Cost-Minimization Analysis, Cost Effectiveness Analysis, Cost-Benefit Analysis); measures of gain in quality of life: QALY and DALY, CVM.

HMP 5128: HEALTH POLICY AND PLANNING

42 HOURS

Policy: definition, design, formulation, implementation, and evaluation; Context of health policy: historical, political, and economic; Roles of various stakeholders, interest groups and their interrelationships; constraints of the policy process; Policy analysis; methods, types of analysis, policy design models, monitoring and evaluating policy outcomes developing policy implementation strategies; Health Sector Reforms: definitions, context, proposals for reforming the health care system reforms – decentralization, health insurance, social security, pension schemes, pharmaceuticals, autonomy; Role of international and national regulatory bodies; monitoring and evaluating reforms in health Planning: introduction; concept; elements; cycle and theories; health planning: rationale, basic assumptions; health services planning systems; local interest groups and the planning process; organizational linkages in planning for health; centralization and decentralization strategies; health services and the role of the hospital, consequences of privatization or autonomy of public hospitals. Influence of structural adjustment policies; implementation and evaluation. Management skills and techniques needed by policy analysts and planners; emerging issues in health policy and planning.

HMP 5125: HEALTH MANAGEMENT INFORMATION SYSTEMS - 42 HOURS

Definitions: management information system, data and information; concepts of management information system; data - sources, collection analysis, storage, retrieval; reporting, dissemination, utilization; classification of information; uses of information. Information for hospital administrators: Types of information systems; personnel, financial, facilities and fixed assets; workload and operation; patient care, logistics. Computers and management of information: Existing state of health information systems; conceptual and practical aspects in the analysis, development, and utilization of computer-based information and control systems with emphasis on application to health care environment. Information for facility management: Range and quality and reliability of health and health service data; assessment of the costs and benefits of information systems; access, security and confidentiality; information personnel and training; systems sustainability. Organization of Hospital Information System (HIS); PHC and hospital information systems; integrated information system; Local Area Network (LAN), monitoring and evaluating a hospital information system.

HMP 5129: POPULATION, HEALTH AND DEVELOPMENT 42 HOURS

Concepts and Measures: Population, health, and development; demographic, social and economic indicators of health status and Health care utilization; Uses and measurement of indicators for health planning; data sources. Population Dynamics: principles of fertility, mortality, migration; micro and macro-level determinants of mortality and morbidity; frameworks of analysis; the effect of the timing and patterns of demographic and epidemiological transitions on sustainable development; effects of population growth, mobility, and migration. Demographics and health needs of population sub-groups: Children, School-age population, and Adolescents: Demographic characteristics, health needs, indicators of health status, health impact of social policies and programs, services for children with special needs; causes and consequences of early parenthood; health programs for children in exceptionally difficult circumstances-orphans, street children, children in war and refugee situations. Women's health: demographics, health needs, indicators of health status and health care use; interactions among women's social life, relationship between women's reproductive and productive roles and their health and status; economic and health rationale for family planning; implications of policies and programs on women health. Concepts of aging process, demographic and social aspects of aging; health needs and policies for the elderly; morbidity and chronic ill health. Research agenda in population, health and development. Case studies.

HMP 5131: PROJECT MANAGEMENT AND EVALUATION 42 HOURS

Project Management: Definition, concepts and process. Project life cycles; when to use it; strategic contexts of projects; boards of directors and capital projects; project stakeholder management; strategic issues; project organization charting; project authority, planning; project management information system (PMIS); control and leadership; communication; termination; team development; creativity, innovation, quality, productivity; socio-cultural considerations in project management; consultation and consultancy; project sustainability. Monitoring and Evaluation: Definitions; key concepts; use of evaluations; diagnostic procedure; tailoring evaluations; evaluating established programs. Monitoring perspectives; process of monitoring; strategies for impact assessment; randomized and non-randomized designs for impact assessment; measuring efficiency; the social context of evaluation and monitoring.

HMP 5132: HEALTH CARE FINANCING 42 HOURS

Definitions, concepts, principles: financial management, public finance, accounting/budgeting cycles, types of expenditures, revenues, accounting; sources of information, types, storage,

retrieval, analysis, interpretation, use, and presentation of financial reports. Sources of finances in public and private sector, financing options, issues in resource allocation- criteria, data need, Financial Management: historical financial information, duties of financial managers. Accounting: role, types; concepts and principles of basic accounting; accounting and control system; revenue generation and management, ways and methods of forecasting, issues of revenue generation. Health for all and the crisis in health financing; financing health services; organizational issues; health financing mechanisms; facility improvement fund (FIF), policy, purpose, organization and management; criteria for evaluating health financing mechanism; bridging the resource gap; broad policy options in health care financing. The budget and Budgeting: definition, function, types of systems. Government budgetary processes: cash management; constitutional and legal aspects of the budget and financial control; auditing and reporting function. Audit: principles, roles of various personnel, revenue collection and reforms in financial management: annual revenue and capital estimation, health insurance, social security, pension schemes, cost-recovery methods, user-charges, trends in revenue generation, revolving funds. Case studies in health care financing and health reforms.

OPTION 3: EPIDEMIOLOGY AND DISEASE CONTROL

HMP 5126: EPIDEMIOLOGIC METHODS

42 HOURS

Search for causal relations: Hypothesis generation descriptive and cross-sectional studies. Epidemiologic studies: Observational studies: prospective approach, prospective studies, retrospective approach, retrospective studies/case-control studies. Search for causal relationship: Evaluation of evidence-association vs. causation. Prospective vs. retrospective studies: advantages and disadvantages. Experimental methods: Clinical trials, community trials (prophylactic trials). Confounding bias: Sources of confounding, and strategies in dealing with confounding in observational and clinical studies. Interpretation of results: Differential exposure misclassification, non-differential exposure misclassification, differential disease misclassification, non-differential disease misclassification, strategies in dealing with selection bias. Bias in experimental studies: allocation of subjects, random allocation, attrition and strategies for elimination of bias in experimental studies. Appraisal and critique of published papers. Ethical considerations: Confidentiality, consent and principle of no harm to subjects; procedures and process of ethical approval.

HMP 5133: NON-COMMUNICABLE DISEASE EPIDEMIOLOGY AND CONTROL

42 HOURS

Epidemiology: Causes and risk factors; behavioral, social, developmental, urbanization, ecological, physical, demographic and economic. High-risk groups. Consequences: Measurement

of disease burden; morbidity, mortality, disability; Disability Adjusted Life Years (DALYs), quality of life assessment - concepts and uses; Economic costs, Social impact; Health service utilization and costs. Morbidity, mortality and disability data: Sources, quality, completeness, limitations; Surveillance systems for non-communicable diseases. Classification of diseases. Study designs and their application: Ecological, Case control, cohort, intervention studies; interpretation of results; Critique of specific studies. Uses of research data: policy decisions, choice of interventions, monitoring and evaluation. Prevention and control: Policy issues; Mental Health Act, Road Safety Policy; Population vs. individual preventive strategies. Screening programmes for cancers and cardiovascular diseases. Principles of injury prevention; Haddon's matrix. Planning and evaluation of primordial, primary, secondary and tertiary prevention programmes.

HMP 5134: COMMUNICABLE DISEASE EPIDEMIOLOGY AND CONTROL

42 HOURS

Disease ecology: Historical and Biological factors affecting the dynamics of infection within the population; vector ecology, life cycles and control strategies. Life cycles of specific Protozoan and Helminth infections: Malaria, V. Leishmaniasis, Schistosomiasis, Filariasis, Hookworms. Transmission and Control: Groups and types, transmission and control of Bacterial and Rickettsial diseases - Salmonellas, cholera, Pneumonia and plaque. Control Strategies: Pathogenic and epidemiologic aspects of viral infections in man and their control strategies: Influenza, Yellow fever, Hepatitis, Measles and Poliomyelitis. Zoonotic infections of Public Health importance: Investigations and control. Skin and eye infections: Diagnosis, treatment and control, their significance to the health of a community. Epidemiology and control of sexually transmitted diseases: Gonorrhoea, Syphilis, LGV, Chlamydia and HIV/AIDS. Communicable disease immunology: Host and agents immune reaction mechanisms. Use of vaccines in communicable disease control. Emerging and re-emerging diseases: Tuberculosis, Hemorrhagic fevers- Ebola fever.

HMP 5135: DISEASE SURVEILLANCE AND OUTBREAK INVESTIGATIONS

42 HOURS

Disease surveillance: Definition; Passive and Active surveillance. Uses of surveillance system: identification health needs, epidemics, fields of research, and measuring the impact of a program.

Sources of surveillance data: Hospital records, outpatient facilities and surveys. Methods and strategies: Case definition, Data registration, declaration, transfer and analysis of data, and feedback. Strategies: Exhaustive, disease-selective and service-selective. Disease outbreaks: Definitions; Endemic, epidemic, types of epidemics, pandemic, holoendemic, and hyperendemic.

Measurements: Primary and secondary attack rates, case reproduction rate, Epidemic curves, single versus multiple exposure, secondary source, incubation period. Management and control: Purpose of investigation, preliminary investigation, identification of cases, collection and analysis of data, implementation of control measures, dissemination of findings and follow-up.

Specific epidemics: Meningitis, Measles, Malaria, Food poisoning, Nosocomial and Zoonotic infections.

HMP 5136: STATISTICAL METHODS IN EPIDEMIOLOGY

42 HOURS

Theoretical distributions: The principles, assumptions on; Normal, Binomial, Poisson, Chi-square and student t - distributions. Hypothesis testing: Null and Alternative hypothesis, level of significance, Type I and Type II errors, power of the test confidence intervals, testing the difference between two sample means and proportions, the McNamee test. Determination of sample size: The principles used in case-control, evaluative, cross-sectional, prospective, clinical trial studies. Regression: Simple, fitting of model to data, confidence intervals for regression line, interpretation of regression outputs, meaning of R^2 , Pearson coefficient, multiple regression and logistic regression. ANOVA: 2x2 table, rxs tables, assumptions, analysis, and interpretation.

HMP 5137: PREVENTIVE MEDICINE**42 HOUR**

Development and testing of vaccines; administration of immunization; formulation of vaccine policy; strategies for prevention of nutritional diseases; community based control of vector borne diseases; biological and socio-cultural determinants of nutritional status; behavioral approaches to interrupt disease transmission; management of large vaccine trials; travel medicine, immigrant health and emergency medicine.

OPTION 4: HEALTH PROMOTION**HMP 5138: THEORY AND PRINCIPLES OF HEALTH PROMOTION****42 HOURS**

Theoretical Developments in Health Promotion: Health behaviors and lifestyle changes. Declarations of conferences; Alma-ata declaration, Ottawa Charter, Adelaide Conference, Sundsuals Conference, Rio Summit, Jakarta Conference. Key Concepts in Health Promotion: The logistic (positive) concept of health, Social justice and equity in health supportive environments (enabling), lifestyles, social and gender inequalities. Principle of Health Promotion: Health education, prevention, protection, rehabilitation and maintenance components of Health Promotion. The principle governing the process of health promotion. Established models in Health promotion: The preventive model. The self-Empowerment model. The Radial political model. The topology of control model, Social action model. The PRECEDE framework.

HMP 5139: HUMAN BEHAVIOR AND HEALTH**42 HOURS**

Definition and key concepts: Attitudes, beliefs and behaviors, values. The basic principles and theories of Psychology, Sociology, Anthropology and Economics. The interrelationship between Behavioral Sciences and - disease causation, prevention, curative and rehabilitation, management, compliance, doctor patient interaction, service delivery. Psychosocial and cultural factors in health and illness, socio economic status, mobility, ethnicity, cultural beliefs; attitudes, and practices. The concept of stress, social support, coping and illness behaviors. Social, Psychological, life styles and Environmental determinants of health and disease. Application of behavioral sciences: Concepts and methods for health promotion. Health promotion activities; mobilization, interaction, action, participation, planning for intervention. Life styles and health - the margin of perspective. Relationship between life style factors: health care, environment, health status and physical environment. Ethical issues: definitions. Ethics in: professions, research and health care.

HMP 5140: HEALTH PROMOTION AND PRACTICE**42 HOURS**

Health Promotion process: Problem identification; behavioral and educational diagnosis; Actor identification; Objectives and priority setting; Educational interventions and selecting of strategies: target audience, selecting strategy (ies), social marketing; Intervention; Evaluation; Replanning; Action for Health Promotion process; policy development application and change; Training; Promotion and advocacy for Health Promotion; Activism, lobbying; Innovative strategies in Health Promotion: HP operations research, participatory approaches, use of appropriate technology. Communication definition, purpose, Theories of communication: theories of symbols; information; language' persuasion, disclosure, attraction and conflict communication effects and functions. The communication process; application in different settings: Application in different setting and major issues in communication. Learning: definitions of learning, teaching, Principles of learning: motivation; relevance; individualization; practice; feedback; evaluation. Assessment: definition; purpose; what to asses; methods. Media: types; advantages; disadvantages application in health promotion. Educational approaches to community development. Production and use of IEC materials for health promotion.

HMP 5128: HEALTH POLICY AND PLANNING

42 HOURS

Policy: definition, design, formulation, implementation, and evaluation; Context of health policy - historical, political, and economic; Roles of various stakeholders, interest groups and their interrelationships; constraints of the policy process; Policy analysis; methods, types of analysis, policy design models, monitoring and evaluating policy out comes developing policy implementation strategies; Health Sector Reforms: definitions, context, proposals for reforming the health care system reforms – decentralization, health insurance, social security, pension schemes, pharmaceuticals, autonomy; Role of international and national regulatory bodies; monitoring and evaluating reforms in health Planning: introduction; concept; elements; cycle and theories; health planning: rationale, basic assumptions; health services planning systems; local interest groups and the planning process; organizational linkages in planning for health; centralization and decentralization strategies; health services and the role of the hospital, consequences of privatization or autonomy of public hospitals. Influence of structural adjustment policies; implementation and evaluation. Management skills and techniques needed by policy analysts and planners; emerging issues in health policy and planning.

HMP 5131: PROJECT MANAGEMENT AND EVALUATION**42 HOURS**

Project Management: Definition, concepts and process. Project life cycles; when to use it; strategic contexts of projects; boards of directors and capital projects; project stakeholder management; strategic issues; project organization charting; project authority, planning; project management information system (PMIS); control and leadership; communication; termination; team development; creativity, innovation, quality, productivity; socio-cultural considerations in project management; consultation and consultancy; project sustainability. Monitoring and Evaluation: Definitions; key concepts; use of evaluations; diagnostic procedure; tailoring evaluations; evaluating established programs. Monitoring perspectives; process of monitoring; strategies for impact assessment; randomized and non-randomized designs for impact assessment; measuring efficiency; the social context of evaluation and monitoring.

HMP 5137: PREVENTIVE MEDICINE**42 HOURS**

Development and testing of vaccines; administration of immunization; formulation of vaccine policy; strategies for prevention of nutritional diseases; community based control of vector borne diseases ;biological and socio-cultural determinants of nutritional status; behavioral approaches to interrupt disease transmission; management of large vaccine trials; travel medicine, immigrant health and emergency medicine.

OPTION 6: OCCUPATIONAL HEALTH AND SAFETY.**HMP 5146: OCCUPATIONAL HEALTH, SERVICES, AND SAFETY 42 HOURS**

Organisation, structure and functions of occupational health services: Directorate of Occupational Health and Safety Services (D.O.H.S.S). Legislation: Factories and other places of work Act, Cap. 514 of the laws of Kenya, subsidiary legislations; comparative Legislations from other parts of the world. Principles of occupational health and safety management: planning and implementation of health and safety policies and programmes within an organisation. Legislation: Evaluation of its impact on the workplace; Comparative Management of Occupational Health and Safety Services from different parts of the world. Accident causes: unguarded machinery; plant failure; falls of objects; flying objects; corrosive substances; hot substances; striking against objects. Principles of industrial safety: in-built safety; maintenance and reliability; machinery/plant safety life. Accident investigation techniques: critical path analysis; faulty tree analysis theory; risk mapping. Accidents prevention: human behaviour in accident prevention, process machinery safety, electrical safety, civil engineering and building construction safety, fire safety and safety management.

HMP 5147: PRINCIPLES OF OCCUPATIONAL HYGIENE**42 HOURS**

Occupational hazards: chemical, physical (noise, vibration, lighting, thermal environment, radiation) biological, ergonomic and psychosocial. Hazard evaluation techniques: sampling strategies, environmental monitoring and biological monitoring. Principles of occupational toxicology: mechanisms of toxicity; toxicity of major classes of chemicals; clinical aspects and regulatory matters of toxicity; mixed solvent toxicity of substances; the effectiveness, validity and applicability of biologic markers for early detection of pre-disease effects of adverse environment.

Hazard control: control at source; mechanical, organisational and behavioural control methods.

HMP 5148: OCCUPATIONAL HEALTH EPIDEMIOLOGY**42 HOURS**

Occupational diseases and their causes: definition of exposed populations; exposure levels and estimation of disease risk; Epidemiology of occupational diseases. Epidemiology of occupational injury. Control of occupational diseases: characteristics of occupational disease and their control; health surveillance Worker selection and placement: types of medical examinations leading to placement and transfers. Relationship between occupational diseases and sickness absence: effects on productivity, and economic implications. Compensation procedures: workmen's compensation Act; injury rating; compensable diseases, and constraints.

HMP 5149: OCCUPATIONAL ERGONOMICS**42 HOURS**

Occupational biomechanics: Anthropometry; ergonomically important human dimensions: Statute height, shoulder height, forward reaches length; elbow middle finger length, sitting height, knee height above ground, buttock knee length. Physical activities: Physiological changes during work; dynamic muscle activity; static muscle work; lifting, carrying and posture; repetitiveness of work. Health and Productivity: Man/machine relationship; hand tool selection, handling and maintenance; environment and work performance; work station design.

OPTION 7: HUMAN NUTRITION

HMP 5151: PRINCIPLES OF NUTRITION

42 HOURS

Nutritional requirements: The biological determinants of nutrient needs in individuals and populations, and the manifestations of deficiency states. The use of nutrient requirement data for the formulation of dietary guidelines. The long-term consequences of dietary deficiencies or excesses. Nutrition and Immunity: Malnutrition and infection. Susceptibility of malnourished natural killer cell and phagocyte function, complement system, mucosal immunity, antibody affinity. Importance of the above observations for the various age groups and clinical situations. Nutrition and disease: Diet and health, current nutritional recommendations for PEM, AIDS and Diabetes. Diet and sports performance. Micronutrients: Overview on vitamins and minerals. Important new findings about other micronutrients, their assessment, epidemiology and/or how they relate to public health nutrition. Areas may include vitamins A, B₆, iodine, zinc or iron.

HMP 5152: PRINCIPLES OF NUTRITIONAL ASSESSMENT

42 HOURS

Variability in growth and development: Adaptation, relative risks of morbidity and mortality in wasted and stunted individuals. Role of anthropometric measurements in surveillance and health indicators. Nutritional assessment: Definitions: Nutrition - surveys, surveillance, screening. Nutritional assessment indices: Reference distribution, reference limits, cut off points. Methods: Dietary, laboratory, anthropometric, and clinical. Nutritional Epidemiology: Nutritional surveillance, cohort studies, and field intervention trials. The advantages/disadvantages of different nutritional assessment techniques and research designs. Problems in data collection, analysis, and interpretation. Design of nutritional assessment systems: Study objectives, sampling protocols, validity, precision, random measurement errors, accuracy, bias, sensitivity, specificity, prevalence and predictive value.

HMP 5153: NUTRITION AND PRIMARY HEALTH CARE

42 HOURS

Maternal and child nutrition: Nutritional requirements in pregnancy and lactation. Determinants of birth weight and low milk output. Prenatal and postnatal supplementation programmes. Infant feeding practices. Interventions based on traditional and modern technologies. Nutrition of adolescents and the elderly. Nutrition of displaced persons: Review of nutrition status of refugees and internally displaced persons at the global, regional and country levels; Rapid Nutrition Assessment in emergency settings including sources and types of relevant data; Micronutrient deficiencies; Food security; Feeding and supplementation. Ecology of food and nutrition. Nutritional anthropology: methodological issues. Relationships between subsistence strategies and nutrition. Sex differentials in nutritional status and the relationship between women's

status/work roles and child care/health. Specific factors that affect the nutritional status of women and children. Nutrition interventions: Development of Primary Health Care (PHC). Nutrition activities within PHC. A broad overview of the major nutrition issues and interventions. Focal problems: Vitamin A, Iron, Iodine, PEM and nutrition and AIDS. Rapid rural assessment techniques in identification of immediate and underlying causes of malnutrition.

HMP 5154: POLICY IN FOOD AND NUTRITION

42 HOURS

Food and Nutrition Policy: Definitions. Roles and responsibilities for policy at different levels of society. An historical review of food and nutrition policy and planning. A review of food and nutrition policies aimed at long term problems and food crises and emergencies. The scientific foundations of evaluation research its relationship to program planning, the analysis, interpretation, and reporting of evaluative data with regard to projects in food and nutrition. Policy mechanisms: Definition of Nutrition Problems by and for Policy makers. The nutrition problem. Main approaches: 'food gaps', 'ineffective demand/poverty', 'unhealthy eating' and inappropriate behaviors'. Current sectoral responses in terms of policy intervention and research. Policy mechanism for Problem solving: Defining the problem, measuring the magnitude of the problem, understanding the key biological, developmental, socio-cultural, behavioral, and environmental determinants; identifying and developing intervention and prevention strategies; setting priorities and recommending policies; understanding barriers to implementation and evaluation. Policy negotiation and strategy development: Sectoral conflicts in relation to nutrition and household food security and their potential resolution will be addressed. The relationship between short-term food crises, famines, and long-term factors affecting food and health entitlements. The role of economic and environmental factors. The goals and sustainability of different kinds of interventions will also be reviewed.

YEAR TWO SEMESTER ONE

HMP 5211: Practicum

42 Hours

Each student shall develop assessment tools to enable him/her carry out a situation analysis of an existing health project. The students shall on approval of the tools carry out the case study. Each student shall collect and analyze data, write and submit a report. The report shall constitute the University examination for this course. This practicum will be done immediately after the end of the first year second semester and will be done within two weeks in a health institution or research centre.

YEAR TWO SEMESTER ONE AND TWO

HMP 5212: Thesis

960 Hours

The thesis will be a detailed written report on a research carried out independently by individual students over a period of two semesters. Each student will conduct his or her research with the approval and under the direction of the designated Departmental Course Coordinator. Research titles are selected with reference to the research interest and capabilities of staff. Projects should be professionally relevant and demand-driven to enhance individual employment prospects.