



Harvest
University
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School of Health Sciences
Department of Public Health

**Curriculum for Bachelor of Science in Public
Health (BSc.PH)**

HARVEST UNIVERSITY
YIELDING LEADERS
THE KINGDOM. THE POWER. THE GLORY

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ABBREVIATIONS AND ACRONYMS

AIDS:	Acquired Immune Deficiency Syndrome
BAT:	Best Available Technology
CAP:	Chapter
CHAZ:	Churches Health Association of Zambia
EBP:	Evidence Based Practice
EPI INFO:	Epidemiological information
FAMS:	Financial Accounting Management System
GHP:	Good Hygiene Practice
GMP:	Good Manufacturing Practice
HACCP:	Hazard Analysis Critical Control Point
HIV:	Human Immune Virus
HOD:	Head of Department
HPCZ:	Health Professions Council of Zambia
HU:	Harvest University
IHRs:	International Health Regulations
MOH:	Ministry of Health
NCDs:	Non-Communicable Diseases
NISIR:	National Institute for Science and Industrial Research
PBEHP	Professional Board of Environmental Health Practitioners
PHAST:	Participatory Hygiene and Sanitation Transformation
PHS:	Public Health Sciences
SES:	Socio-economic status
SPSS:	Statistical package for Social Sciences
SWOT:	Strengths, Weaknesses, Opportunities and Threats

1.0 INTRODUCTION

1.1 Background to the programme

Globally, there is ample evidence that public health professionals are essential for leading health systems and programmes into curtailing the causes of poor. It is also well known that in order to tackle the burden of ill health at population level, increased numbers of public health professionals are required to strengthen health systems and manage the bottlenecks. Research and practice efforts have defined the role of the public health profession as that of a multi-disciplinary team of personnel with technical skills and responsibility for leading health systems at all levels to improve health through a population focus.

This public health curriculum is meant to respond to the needs of the various stakeholders, particularly those serving in rural and urban communities. The curriculum is meant to be a process and should evolve with time as it addresses the needs of public health as guided by the Zambia Health Management Information System.

Public Health is "the science and art of preventing disease, prolonging life and promoting human health through organized efforts and informed choices of society, organizations, public and private, communities and individuals." Analyzing the health of a population and the threats is the basis for public health. The "public" in question can be as small as a handful of people, an entire village or it can be as large as several continents, in the case of a pandemic. "Health" takes into account physical, mental and social well-being. It is not merely the absence of disease or infirmity, according to the World Health Organization. Public health is interdisciplinary. For example, epidemiology, biostatistics and health services are all relevant. Environmental health, community health, behavioral health, health economics, public policy, mental health and occupational safety are other important subfields. Public health aims to improve the quality of life through prevention and treatment of disease, including mental health. This is done through surveillance of cases and health indicators, and through promotion of healthy behaviors.

Modern public health practice requires multidisciplinary teams of public health workers and professionals. Teams might include epidemiologists, biostatisticians, public health nurses, environmental health officers/public health inspectors, bioethicists; and even veterinarians might

be called on. Access to health care and public health initiatives are difficult challenges in developing nations. Public health infrastructures are still forming

Public health plays an important role in disease prevention efforts in both the developing world and in developed countries, through local health systems and non-governmental organizations. The World Health Organization (WHO) is the international agency that coordinates and acts on global public health issues. Most countries have their own government public health agencies, sometimes known as ministries of health, to respond to domestic health issues

The curriculum is further prepared in line with requirement 12 (a) of the Application for Approval of Training Programmes by the Health Professions Council of Zambia (HPCZ). The curriculum is a standard that marks minimum platforms from which public health education will start an attempt to meet the Vision, Values and Mission statement of Harvest University.

2.0 PROGRAMME MISSION STATEMENT AND VISION

2.1 Mission Statement

Harvest University is committed to creating and enriching the academic, personal and professional growth and at the same time disseminating knowledge leading to academic and research excellence along with developing individuals for a better tomorrow.

2.2 Vision

Harvest University thrives on Christian values and fosters lifelong academic excellence. In this regard, Harvest University strives to move towards becoming a world-class university with a transformative impact on society and economic development through continual innovation in higher education, research, creativity and entrepreneurship.

3.0 INSTITUTIONAL VALUES

Harvest University underpins and upholds the following values in the provision of tertiary education:

3.1. Quality and Excellence:

Harvest University is committed to providing quality product or service and excellence in all disciplines that fall under its jurisdiction. The Harvest University believes in the provision of the

service that is excellent, adequate, dependable and economic to students. In providing this mandate, it calls for hard work by students, lecturers and supportive staff of Harvest University

3.2 Integrity, Trust, and Respect:

Harvest University is committed to ensuring trust and respect for all persons in an environment becomes an integral part of our leadership. As an institution that cultivates Christian values, Harvest University strives to achieve institutional integrity in providing higher education to local and international students.

3.3 Research, Innovation, and Creativity:

Harvest University is committed to the pursuit of inquiry and discovery and to the creation and dissemination of knowledge.

3.4 Freedom of Expression:

Harvest University is committed to the free exchange of ideas in a constructive and civil environment, including the canons of academic freedom in research, teaching, and outreach.

3.5 Stewardship and Accountability:

The Harvest University is committed to serving as ethical and responsible stewards of University resources. In order to achieve good corporate governance and quality assurance in managing human and other resources, transparent and prudent decisions are key to the growth of the university.

4.0 PROGRAMME AIM AND OBJECTIVES

4.1 Aim of the programme

The curriculum aims at developing public health practitioners who will be fully equipped in both social and scientific approaches to organize an effective public health service and to promote the health of humankind through evidence based practice and interventions to a level where environmental factors harmful to human health cease to be a public health problem.

4.2 Programme objectives

The programme objectives will enable student to develop abilities to:

4.2.1 Illustrate how social factors relate to Public Health issues

- 4.2.2 Describes assets and resources that can be used for improving the health of a community
- 4.2.3 Describes factors affecting the health of a community (e.g., equity, income, education, environment)
- 4.2.4 Effectively contribute to the public health profession through sound professional public health attitudes, values, concepts and ethical practices.
- 4.2.5 Recognize and facilitate diversity of thought, culture, gender and ethnicity through communication and collaboration.
- 4.2.6 Participate in professional development, scholarship, service, and educational activities that contribute to public health.
- 4.2.7 Demonstrate advanced knowledge and skills necessary for specialized roles within public health specific to community health or environmental health
- 4.2.8 Apply principles of environmental management to mitigate environmental pollution.
- 4.2.9 Demonstrate the application of knowledge and skills in the identification, prevention and control of communicable and non-communicable diseases
- 4.2.10 Inspect food and food premises in order to prevent fraud and food borne diseases.
- 4.2.11 Demonstrate the basic principles relevant to the management of environmental and occupational health.
- 4.2.12 Demonstrate the necessary knowledge and skills in the identification, management and control of pests and vectors of public health importance.
- 4.2.13 Use scientific technology in the planning and construction of built environment and legislation related to building hygiene and services in both rural and urban areas.
- 4.2.14 Describe the evolution of Public health and its relevance to current standards and legislation.
- 4.2.15 Interpret the basic principles of Environmental (Public) Health law, the legal system, the structure of government and government systems.
- 4.2.16 Identify and evaluate Public health needs.
- 4.2.17 Develop strategies for mitigating Public Health needs.
- 4.2.18 Promote stakeholder participation.

5.0 PROGRAMME LEARNING OUTCOMES

Graduates of the BSc in Public Health will be expected to possess the following competences in order for them to be able to adapt and work in the entire health service sector in achieving the set health objectives:

- 5.1 Identify communicable and non-communicable diseases affecting the community
- 5.2 Utilize appropriate public health strategies and interventions to meet the identified health needs
- 5.3 Identify and collaborate with partners in addressing public health issues
- 5.4 Use skills such as team building, negotiation, conflict management and group facilitation to build partnerships.
- 5.5 Advocate for healthy public policies and services that promote and protect the health and well-being of individuals and communities
- 5.6 Demonstrate knowledge about the following concepts: the health status of populations, inequities in health, the determinants of health and illness, strategies for health promotion, disease and injury prevention and health protection, as well as the factors that influence the delivery and use of health services.
- 5.7 Demonstrate knowledge about the history, structure and interaction of public health and health care services at local, provincial/ territorial, national, and international levels. 1.3 Apply the public health sciences to practice.
- 5.8 Use evidence and research to inform health policies and programs.
- 5.9 Demonstrates the ability to pursue lifelong learning opportunities in the field of public health.
- 5.10 Apply the epidemiology triangle (host, environment and agent) and integrate Geographic Information System (GIS) software for mapping cases
- 5.11 Identify relevant and appropriate sources of information, including community assets and resources.
- 5.12 Collect, store, retrieve and use accurate and appropriate information on public health issues.
- 5.13 Analyze information to determine appropriate implications, uses, gaps and limitations to manage the current ethical, political, scientific, socio-cultural and economic contexts.
- 5.14 Manages disaster situations and ensures risk reduction interventions are implemented for sustainable well-being of citizens

- 5.15 Utilize mental health laws and policies in order to promote mental health and clients rights
- 5.16 Counsel and offer information and services in family planning in order to make informed choice and increase acceptance levels
- 5.17 Collaborate with other public health teams, local authorities, community and non-governmental agencies in the provision of quality public health care services
- 5.18 Document and interpret and correctly utilizes public health informatics skills to the public health protection of individuals, families and communities
- 5.19 Perform health impact assessment of communities according to needs
- 5.20 Determine community health status and factors influencing health in a community (e.g., quality, availability, accessibility, and use of health services; access to affordable housing)
- 5.21 Develop organizational strategic plan (e.g., includes measurable objectives and targets; incorporates community health improvement plan, workforce development plan, quality improvement plan, and other plans) with input from the governing body or administrative unit that oversees the organization
- 5.22 Monitor current and projected trends (e.g., health, fiscal, social, political, environmental) representing the health of a community
- 5.23 Gathers information for evaluating policies, programs, and services (e.g., outputs, outcomes, processes, procedures, return on investment)
- 5.24 Use evidence and research to inform health policies and programmes.

6.0 PROGRAMME ENTRY REQUIREMENTS

6.1 Level 1 – First year entry: Applicants must have passed five ‘O’ level passes at credit level or better in English Language, Mathematics, Biology, Science or Chemistry and Physics, and any other subject.

6.2 Level 2 - Second year entry: Applicants with Diploma in Environmental Health or Public Health or Diploma in any health related field with a minimum of five ‘O’ levels at credit level or better in English Language, Mathematics, Biology/Agricultural Science, Science or Chemistry and Physics, and any other subject.

KEY NOTE: For applicants with Diploma in other health related field, Harvest University will scrutinize the qualifications of each applicant and determine the level of entry or course exemptions.

7.0 CURRICULUM MODEL

7.1 This curriculum consists of taught theoretical courses with practical laboratory experience and field exposure to practicum sites to strengthen and match with current approaches in scientific methods. There will be community based learning and practice in later years of training in order to strengthen students' knowledge, skills and attitudes. The community placements will be conducted with institutions where we have memorandum of understanding. This curriculum offers to provide a student-centred learning approach through a problem based learning approach in a resource constrained environment, as is mostly the case in Zambia.

7.2 Ideally, curriculum models in theory are described as traditional, integrated, hybrid or spiral. The Harvest University curriculum in Public Health is designed with traditional model in mind and taking into consideration available limited resources. The curriculum is planned in such a way that the traditional approach is taken care of by ensuring that students study the "A" levels then move on to core Public health courses. Even though non-core courses such as Computer skills, Academic writing skills, Communication skills, Ethics, Christian values, may be taught separately, they will be implicitly taught within the core Public health courses.

8.0 CURRICULUM STRUCTURE

Public Health professionals have traditionally acquired a wide range of knowledge and skills that need to be applied in specific circumstances. It is this diverse body of knowledge that allows for the efficient and cost-effective handling of a wide range of environmental, food safety and occupational health issues. The management of the programme should appreciate the inter-relationship that exists between these disciplines and teaching programmes, training opportunities and mode of study should be designed to reflect that. In laying out the curriculum specialist areas of Public health studies have been programmed into seven core themes of Public health studies and an overarching theme, each of which is so structured as to ensure that topics are studied at appropriate stages in the progressive development of the student's knowledge. The themes are: -

- 8.1 Disease control and prevention
- 8.2 Health promotion and behavioural change.
- 8.3 Reproductive health, mother and child health.
- 8.4 Epidemiological and surveillance systems

8.5 Community Nutrition

8.6 Mental Health

8.7 Evidence based practice.

8.8 Communicable and non-communicable diseases

8.9 Health information management System

8.10. Decentralization of programmes

These subject areas of the programme have been designed and located to provide the students with a learning experience which addresses these core themes at each level and progresses them appropriately from one level to the next. The sixth theme shows how certain subjects provide integration of the themes throughout the programme. It is of paramount importance that the curriculum is carried out with the primary focus on the holistic concept of environmental, food safety and occupational health and safety stratagem.

Table 1: The curriculum structure (BSc in Public Health)

Course Code	Course Title	Assessment Criteria			
		CA (%)	Theory Exam (%)	Practical Exam (%)	Total (%)
First Year Courses ('A' levels)					
First semester of the first year					
APM 111	Applied Physics and Mathematics	40	40	20	100
ACB112	Applied Chemistry and Biology	40	60	--	100
CIM 113	Computers Skills and Information Management	40	40	20	100
CSA 114	Communication Skills and Academic Writing	40	40	20	100
ASP115	Applied Socio-Psychology	40	60	--	100
Second semester of the first year					
PHS 121	Applied Human Physiology and Anatomy	40	40	20	100
PHS 122	Applied Human Immunology, Microbiology, Pathology, Virology, Mycology and Parasitology	40	40	20	100
PHS 123	Public Health Policy and Law	40	40	20	100
PHS 124	Introduction to Public Health	40	60	--	100
PHS 125	Food Chemistry and Nutrition	40	60	--	100
First semester of the second year					
PHS 211	Introduction to Public Health Administrative Systems	40	60	--	100
PHS 212	Water Supply, Sanitation and Hygiene	40	40	20	100
PHS 213	Medicines and Toxicology	40	40	20	100
PHS 214	Community Health Services	40	60	--	100
PHS 215	Medical Entomology and Chemical Safety	40	40	20	100
Second semester of the second year					
PHS 221	Strategic Public Relations and Ethics	40	40	20	100
PUH 222	Communicable Diseases	40	40	20	100
PHS 223	Reproductive Health, Mother and Child Health	40	40	20	100
PHS 224	Health Promotion and Behavioural Change	40	60	--	100
PHS 225	Waste Management	40	60	--	100
Third Year Courses					
First semester of the third year					
PHS 311	Integrated Disease Surveillance and Port Health	40	40	20	100
PHS 312	Applied Environmental Health and Pollution	40	40	20	100
PHS 313	Community Nutrition and Well-being	40	40	20	100
PHS 314	Non-Communicable Diseases	40	60	--	100

PHS 315	Research Methodology and Biostatistics	40	60	--	100
PHS 316	Industrial Training I	40	--	60	100
Second semester of the third year					
PHS 321	Business Environment and Entrepreneurship in Public Health	40	40	20	100
PHS 322	Strategic Management and Marketing in Health Care System	40	60	--	100
PHS 323	Food Safety and Food Inspections	40	60	--	100
PHS 324	Mental Health	40	40	20	100
PHS 325	Evidence Based Practice in Public Health	40	60	--	100
PHS 326	Research Project 1	20	30	50	100
Fourth Year Courses					
First semester of the fourth year					
PHS 411	Epidemiology and Demography in Public Health	40	40	20	100
PHS 412	Public Health Informatics and Health Management Systems	40	40	20	100
PHS 413	Principles of Occupational Health and Safety	40	40	20	100
PHS 414	Geographical Information System and Remote Sensing in Public Health	40	40	20	100
PHS 415	Research Project II	20	30	50	100
PHS 416	Industrial Training II	40	--	60	100
Second semester of the fourth year					
PHS 421	Climate Change and Disaster Risk Reduction	40	40	20	100
PHS 422	Project Management	40	40	--	100
PHS 423	Health Economics and Financing				
PHS 424	Introduction to Political Education & Public Administration	40	40	--	100
PHS 425	Human Resource Management	40	60	--	100

Coding system

The explanation for the coding system is as follows:-

Letters: These denote abbreviations of the course (PHS – Public Health Sciences)

Figures: Figure No. 1 - denotes year in which the course is offered.

Figure No. 2 - denote semester in which the course is offered

Figure No. 3 - denote the number of series of the course in the semester.

9.0 CURRICULUM MAP

Table 2: Curriculum Map (BSc in Public Health)

	Semester 1						Semester 2					
	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept
Year 1	‘A’ LEVEL COURSES											
	Applied Physics and Mathematics						Applied Human Physiology and Anatomy					
	Applied Chemistry and Biology						Applied Human Immunology, Microbiology, Pathology, Virology, Mycology and Parasitology					
	Computers Skills and Information Management						Public Health Policy and Law					
	Communication Skills and Academic Writing						Introduction to Public Health					
	Applied Socio-Psychology						Food Chemistry and Nutrition					
	PROFESSIONAL COURSES											
Year 2	Introduction to Public Health Administrative Systems						Strategic Public Relations and Ethics					
	Water Supply, Sanitation and Hygiene						Communicable Diseases					
	Medicines and Toxicology						Reproductive Health, Mother and Child Health					
	Community Health Services						Health Promotion and Behavioural Change					
	Medical Entomology and Chemical Safety						Waste Management					
Year 3	Integrated Disease Surveillance and Port Health						Business Environment and Entrepreneurship in Public Health					
	Applied Environmental Health and Pollution						Strategic Management and Marketing in Health Care System					
	Community Nutrition and Well-being						Food Safety and Food Inspections					
	Non-Communicable Diseases						Mental Health					
	Research Methodology and Biostatistics						Evidence Based Practice in Public Health					
	Industrial Training I						Research Project 1					
Year 4	Epidemiology and Demography in Public Health						Climate Change and Disaster Risk Reduction					
	Public Health Informatics and Health Management Systems						Project Management					
	Principles of Occupational Health and Safety						Health Economics and Financing					
	Geographical Information System and Remote Sensing in Public Health						Introduction to Political Education & Public Administration					
	Research Project II						Human Resource Management					

10.0 TEACHING AND LEARNING PLAN

Table 3: Teaching and Learning Plan

First Year Courses (BSc in Public Health)

CODE	COURSE TITLE	HOURS OF LEARNING (IN WEEKS)													CREDIT POINTS
		Lectures		Tutorials		Laboratory		Seminars		Fieldwork		Assessments and Self Study		Total Notional Hours	
		Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks		
APM 111	Applied Physics and Mathematics	3	15	2	15	2	15	-	-	-	-	3	15	150	15
ACB112	Applied Chemistry and Biology	3	15	2	15	2	15	-	-	-	-	3	15	150	15
CIM 113	Computers Skills and Information Management	3	15	1	15	2	15	-	-	-	-	1	10	100	10
CSA 114	Communication Skills and Academic Writing	3	15	1	15	-	-	1	10	-	-	2	10	90	9
ASP115	Applied Socio-Psychology	3	15	1	15			1	10			2	10	90	9
PHS 121	Applied Human Physiology and Anatomy	3	15	1	15	2	15	-	-	-	-	2	15	150	15
PHS 122	Applied Human Immunology, Microbiology, Pathology, Virology, Mycology and Parasitology	3	15	1	15	2	15	-	-	-	-	2	15	150	15
PHS 123	Public Health Policy and Law	3	15	1	15			2	15	-	-	2	15	120	12
PHS 124	Introduction to Public Health	3	15	1	15			1	10	-	-	2	10	80	8
PHS 125	Food Chemistry and Nutrition	3	15	1	15	2	15	-	-	-		2	15	120	12
Total														1200	120

Second Year Courses (BSc in Public Health)

COURSE CODE	COURSE TITLE	HOURS OF LEARNING													CREDIT POINTS
		Lectures		Tutorials		Laboratory		Seminars		Fieldwork		Assessments and Self Study		Total Notional Hours	
		Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks		
PHS 211	Introduction to Public Health Administrative Systems	3	15	2	15	-	-	2	15	-	-	3	15	150	15
PHS 212	Water Supply, Sanitation and Hygiene	3	15	1	15	2	15	-	-	3	10	2	15	150	15
PHS 213	Medicines and Toxicology	3	15	1	15	-	-	1	10	-	-	1	10	80	8
PHS 214	Community Health Services	3	15	1	15	-	-	1	10	2	10	1	10	100	10
PHS 215	Medical Entomology and Chemical Safety	3	15	1	15	1	15	-	-	3	10	3	15	150	15
PHS 221	Strategic Public Relations and Ethics	3	15	1	15	-	-	1	10	-	-	1	10	80	8
PHS222	Communicable Diseases	3	15	1	15	-	-	3	10	-	-	2	15	120	12
PHS 223	Reproductive Health, Mother and Child Health	3	15	1	15	1	10	-	-	2	10	2	15	120	15
PHS 224	Health Promotion and Behavioural Change	3	15	1	15	-	-	1	10			2	15	100	10
PHS 225	Waste Management	3	15	1	15	-	-	-	-	3	15	3	15	150	15
Total														1200	120

Third Year Courses (BSc in Public Health)

COURSE CODE	COURSE TITLE	HOURS OF LEARNING													CREDIT POINTS
		Lectures		Tutorials		Laboratory		Seminars		Fieldwork		Assessments and Self Study		Total Notional Hours	
		Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks		
PHS 311	Integrated Disease Surveillance and Port Health	3	15	1	15	-	-			3	10	1	10	100	10
PHS 312	Applied Environmental Health and Pollution	3	15	1	15	3	5	-	-	3	5	1	10	100	10
PHS 313	Community Nutrition and Well-being	3	15	1	10	-	-	-	-	3	5	1	10	80	8
PHS 314	Non-Communicable Diseases	3	15	1	10	-	-	3	5	-	-	1	10	80	8
PHS 315	Research Methodology and Biostatistics	3	15	2	15	-	-	1	15	-	-	2	10	110	11
PHS 316	Industrial Training I	-								40	5	2	10	220	22
PHS 321	Business Environment and Entrepreneurship in Public Health	3	15	1	15	-	-	1	10	-	-	1	10	80	8
PHS 322	Strategic Management and Marketing in Health Care System	3	15	1	15	-	-	1	10	-	-	1	10	80	8
PHS 323	Food Safety and Food Inspections	3	15	-	-	2	10	-	-	3	10	1	15	110	11
PHS 324	Mental Health	3	15	1	15	-	-	1	10			1	10	80	8
PHS 325	Evidence Based Practice in Public Health	3	15	1	15	-	-	3	5	-	-	1	10	80	8
PHS 326	Research Project 1 (Proposal Writing)	-	-	-	-	-	-	-	-	-	-	8	10	80	8
Total														1200	120

Fourth Year Courses (BSc in Public Health)

COURSE CODE	COURSE TITLE	HOURS OF LEARNING													CREDIT POINTS
		Lectures		Tutorials		Laboratory		Seminars		Fieldwork		Assessments and Self Study		Total Notional Hours	
		Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks	Hrs/ wk	No. of wks		
PHS 411	Epidemiology and Demography in Public Health	3	15	1	15	-	-	-	-	-	-	1	10	70	8
PHS 412	Public Health Informatics and Health Management Systems	3	15	1	10	-	-	-	-	3	5	2	10	90	9
PHS 413	Principles of Occupational Health and Safety	3	15	-	-	3	5	-	-	4	5	2	10	100	10
PHS 414	Geographical Information System and Remote Sensing in Public Health	3	15	-	-	1	10	-	-	1	15	1	10	80	8
PHS 415	Research Project II (Data Collection and Dissertation Writing)	-	-	-	-	-	-	-	-	40	5	2	10	220	22
PHS 416	Industrial Training II	-	-	-	-	-	-	-	-	40	5	2	10	220	22
PHS 421	Climate Change and Disaster Risk Reduction	3	15	1	10	-	-	1	10	3	5	1	10	90	9
PHS 422	Project Management	3	15	1	15	-	-	1	10	-	-	1	10	80	8
PHS 423	Health Economics and Financing	3	15	1	15	-	-	1	10	-	-	1	10	80	8
PHS 424	Introduction to Political Education & Public Administration	3	15	-	-	-	-	1	10	3	5	1	10	80	8
PHS 425	Human Resource Management	3	15	1	15	-	-	1	10	-	-	1	10	80	8
Total														1200	120

PROGRESSION CRITERIA

The progression criteria for Bachelor of Science in Public Health Programme are based on the School of Health Sciences of the Harvest University. A student will progress to the next level upon having passed all courses in the current level of study.

10.1 Grading System for the BSc in Public Health

Table 4: Numerical conventional and criteria

Grade	Mark	Class	GPA
Distinction	90 and above	A+	4.0
Distinction	80 – 89	A	3.7
Merit	70 – 79	B+	3.3
Credit	60 – 69	B	3.0
Definite pass	55 – 59	C+	2.7
Bare pass	50 – 54	C	2.0
Bare fail	45 – 49	D+	1.3
Clear fail	40 – 44	D	1.0
Definite fail	Below 39	E	0.0

11.2 Regulations for writing supplementary examinations, repeating the semester and exclusion from the programme

11.2.1 Professional Courses: Second to Fourth year courses

1. There are five courses in each semester.
2. A student who obtains grade D in one (1) course or grade D+ in two (2) courses and passes the other courses will be required to write supplementary examination in the courses failed provided continuous assessment is passed.
3. A student who obtains grade D in three (3) courses or fails supplementary examination will be required to repeat the semester. The following criteria shall apply for repeat semester:
 - 3.1 Grade D+ in two courses with failed continuous assessment
 - 3.2 Grade D+ in three courses with passed continuous assessment
 - 3.3 Grade D in two courses
 - 3.4 Failure in supplementary examinations.
4. A student may repeat a semester only once.
5. Continuous assessment shall carry 40% of the total final grade in each course.
6. The final examination in each course shall constitute 60%.
7. A student shall be deemed to have passed end of semester examination if s/he obtains 50% or more in each course which includes continuous assessment and final examination.
8. A student who passes supplementary examinations shall be awarded a grade of P for pass.

9. Exclusion from the Programme: The following criteria shall apply for exclusion from the programme:
- 9.1 Failure with two Ds and one D+.
 - 9.2 Failure with D in three courses.
 - 9.3 Failure in more than three courses
 - 9.4 Failure of a repeated semester.

12.0 THE METHOD OF DELIVERY:

- 12.1 Full time delivery (FT)
- 12.2 Part time delivery (PT)
- 12.3 Online distance learning delivery (ODL)

13.0 LINKAGES WITH EXTERNAL INSTITUTIONS

Harvest University shall accept application of affiliation from academic institutions such as universities and colleges; provided that such institution(s) meets the university's criteria of affiliation. A Memorandum of Agreement shall be entered into and signed by two parties, namely, The Harvest University and the university/college concerned in which areas of collaboration shall be spelt out

At the moment Harvest University is collaborating with Northrise University of Ndola on the Copperbelt province, University of Zambia and Levy Mwanawasa Medical University in Lusaka in different areas of academic interest.

YEAR ONE SEMESTER ONE

Course Codes	Course Titles
APM 111	Applied Physics and Mathematics
ACB 112	Applied Chemistry and Biology
CIM 113	Computer Skills and Information Management
CSA 114	Communication Skills and Academic Writing
ASP 115	Applied Socio-Psychology

COURSE TITLE: APPLIED PHYSICS AND MATHEMATICS

COURSE CODE: APM 111

INTRODUCTION

In the modern world of science and technology advancement, it is imperative that students are equipped with some basic concepts of classical and modern physics to enable them understand the dynamics of physical processes, properties, structure of the land on which humans and other living organisms live. This approach enables students to grasp how the earth functions in relation to energy interactions such as gravity, magnetic, electrical interactions, and therefore integration of mathematics, geology and physics helps to understand how the earth functions. Physics helps learners in the long run to function effectively in managing many challenging environmental issues that the globe faces today such as natural hazards.

In this course mathematics has been integrated to the base from which to explore concepts and develop problem-solving skills. Through knowledge and understanding students develop mathematical reasoning to make deductions and solve problems. Mathematical calculations help students to reflect upon their findings and problem-solving processes. Students are encouraged to share their thinking with lecturers and peers and to examine different problem-solving strategies. Critical reflection in mathematics helps students gain insight into their strengths and weaknesses as learners and to appreciate the value of errors as powerful motivators to enhance learning and understanding.

COURSE AIM:

The course aims at equipping students with fundamental knowledge and a sound understanding of physics together with practical, analytical and mathematical skills that enable them apply to manage Public health parameters. Further the course equips students with mathematical skills in foundation subjects, namely, set theory, elementary algebra, elementary functions, geometry, vectors and matrices including calculus.

COURSE OBJECTIVES:

1. Explain Newton's Law
2. Correctly solve problems applying important concepts in measurements, vector analysis, rotational work, linear momentum, motion in a circle, energy and momentum
3. Explain laws of physics and calculate mathematical problems based on the laws
4. Describe the physical dynamics that are applicable in the control of mechanical, chemical and radio-isotope processes
5. Explain the laws of physics and calculate mathematical problems based on the laws
6. Elucidate the physical dynamics that apply and control mechanical, chemical and radio-isotope processes
7. Correctly solve problems applying important concepts in algebra, set theory and analytical geometry including vector analysis
8. Solve problems in elementary differential calculus, elementary functions and explain their properties
9. Think logically, analytically, and abstractly

10. Communicate mathematics, both orally and in writing
11. Solve problems in calculus, matrices and determinants, and explain their properties
12. Solve further complex numbers
13. Think logically, analytically, and abstractly
14. Communicate mathematics, both orally and in writing

COURSE LEARNING OUTCOMES

1. Demonstrate understanding of physical dynamics that apply and control mechanical, chemical and radio-isotope processes
2. Use principles of physics in the analysis, control and management of environmental issues.
3. Apply quantitative reasoning and appropriate mathematical calculations in physics to describe or explain phenomena in the natural world
4. Demonstrate understanding of the process of scientific inquiry, and explain how scientific knowledge is discovered and validated
5. Demonstrate knowledge of basic physical principles and their applications to the applications to the understanding of living systems
5. Demonstrate understanding of mechanics as applied to human and diagnostic systems
6. Develop mathematical curiosity and use inductive and deductive reasoning when solving problems
7. Develop abstract, logical and critical thinking and the ability to reflect critically upon their work and the work of others
8. Develop a critical appreciation of the use of information and communication technology in mathematics
9. Use appropriate mathematical concepts and skills to analyse solve problems in both familiar and unfamiliar situations including those in real-life contexts

COURSE CONTENT:

UNIT ONE: APPLIED PHYSICS

1. Measurements, units and dimensions
2. Vectors and their use;
3. Uniformly accelerated motion;
4. Newton's laws;
5. Work and energy;
6. Linear momentum;
7. Motion in a circle;
8. Rotational work,
9. Energy and momentum;
10. Static equilibrium;
11. Mechanical properties of matter;
12. Gases and the kinetic theory;
13. Thermal properties of matter;
14. Thermodynamics;
15. Vibration and waves.
16. Sound
17. Electric forces and fields;
18. Electric potential;
19. Direct-current circuits;
20. Magnetism;
21. Electromagnetic induction;
22. Alternating currents and electronics;
23. Electromagnetic waves (e.m. waves)
24. Properties of light;
25. Optical devices;
26. Interference and diffraction;
27. Three revolutionary concepts;
28. Energy levels and spectra;
29. The atomic nucleus;
30. Physics of the very large and very small;
31. Energy and environment.

UNIT TWO: APPLIED MATHEMATICS

2.1 Introduction set theory:

2.1.1 Definition of sets:

- The empty and universal sets
- Subsets; union and intersection of sets;

2.1.2 De Morgan's laws:

- Complement of set
- Binary operations
- Relations
- Mappings
- Functions and their inverses
- Sets of numbers-integers
- Rational numbers, real numbers and complex numbers

2.2 Preliminary Algebra:

2.2.1 Quadratic equations:

- Completing the square
- Maximum and minimum values of quadratic functions and their graphs
- Polynomials
- The factor theorem, the remainder theorem: approximation to the roots of equations; solutions of surd equations and fractional equations; inequalities.

2.3 Elementary Functions:

2.3.1 The standard functions; $\sin x$, $\cos x$, e^x , $\sin hx$, their properties including basic identities and graphs; inverse functions.

2.4 Elementary Differential Calculus:

2.4.1 Limits, continuity; derivatives; derivatives of sums, products, quotients and composite functions

2.4.2 Derivatives of trigonometric functions, derivative of inverse trigonometric functions, exponential

2.4.3 Logarithmic functions; higher order derivatives.

2.5 Further Algebra

2.5.1 Mathematical induction

2.5.2 Binomial theorem

2.6 Analytical Geometry and Vector Analysis

2.6.1 Place coordinate system: the particular cases (d.y) and (r.0)

2.6.2 The equations of the place curves, loci: straight line, circle and conic sections.

2.6.3 The 3-D geometric vector: the direction vector, direction cosines; the vector operations $A+B$ and $a \times b$ in geometric terms

2.6.4 The laws of algebra e.g. $a(b+c)=a.b + a.c$ and $a \times (b+c)=a \times b + a \times c$.

2.7 Matrices and Determinants

2.7.1 Introduction to the concept of a matrix; the particular matrices O and I ; transpose A^T of A ; $A + B$, AB and KA ; determinant $\{A\}$ of square matrix A , minors and cofactors; properties of determinants

2.7.2 Use of determinants in the solution of system of simultaneous linear equations

2.8 Further Complex numbers

2.8.1 Polar form of a complex number, argand diagram;

2.8.2 Modulus and argument of a complex number, De-Moivre's theorem;

2.9 Further differential calculus

2.9.1 Applications of derivatives to gradient of a plane curves

2.9.2 Increasing and decreasing functions: functions; stationary points (maxima, minima, point of inflection), curve sketching; rate of change

2.10 Integral Calculus

2.10.1 The definite integral as the inverse of differentiation; integration.

2.10.2 Substitution integration by parts, partial fractions

2.10.3 Integration of rational functions

2.10.4 Area under a curve.

TEACHING METHODS

1. Lectures and Tutorials
2. Practical/Laboratory
3. Demonstrations
4. Group discussions

NOTIONAL HOURS: 150 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 2 hours per week
3. Practical/Lab: 2 hours session per week
4. Assessment and self-study: 3 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment	40%
1.1 2 Tests (theory)	20%
1.2 2 Assignments/Tutorial quizzes	10%
1.3 Laboratory work	10%
2.0 Final Examinations	60%
2.1 Theory	50%
2.2 Practical	10%

PRESCRIBED READINGS:

1. Bueche, F.J. and Jerde, D.A. (1995). **Principles of Physics**. 6thEdn. McGraw-Hill. ISBN: 13.978-00700 P192:
2. Backhouse, J.K. and Houldsworth, S.P.T. (1985). **Pure Mathematics**

RECOMMENDED READINGS

1. Meredithand, D.C. and Redish, E.F. (2013). **Re-inventing physics for life-sciences majors**. Phys. Today 66(7), 38
2. Kaufman, J.L. (1987). **College Algebra and Trigonometry**. PWS, Publishers
3. Smith, T.S. and Minton, R. B. (). **CALCULUS: Single Variable**. New York: McGraw-Hill

COURSE TITLE: APPLIED CHEMISTRY AND BIOLOGY

COURSE CODE: ACB113

INTRODUCTION

This course introduces foundation chemistry to students in physical and chemical properties of matter. The knowledge acquired by the students is indispensable when dealing with materials of all types in the field of Public Health, both during their study and in their employment situations. The course further prepares students in basic inorganic, analytical, organic and physical chemistry.

The course further provides the background to biological sciences that equips students with initial biological concepts required for higher courses and introduces students to the diversity of life and its relationship to the environment. The course further provides foundation that introduces students to fundamental principles of systems biology that highlights the diversity of life on earth and its relationship to the environment.

COURSE AIM:

The course aims at providing the foundation of general chemistry in order to impart experimental skills to students in organic, analytical, organic and physical chemistry necessary to make scientific decisions that benefit mankind. The course also provides biological concepts that introduces students to the diversity of life at the cell level; offers knowledge and practical skills of understanding anatomical and physiological functions of plants and animals.

COURSE OBJECTIVES:

1. Describe different types of chemical substances and their physical and chemical properties
2. Calculate problems in chemistry to determine chemical quantities, qualities etc.
3. Describe and explain the concepts involved in electrochemistry and predict the results of electrolysis
4. Describe and explain the concepts involved in electrochemistry and predict the results of electrolysis
5. Apply the knowledge in other courses in the Public Health degree program requiring such level of chemistry knowledge
6. Describe the quantum mechanical module of an atom, write electron configuration of atoms. The periodic table
7. Explain and predict the chemical bonding, and chemical structure and shape of, simple molecules.
8. Describe chemical equilibrium, apply Le Chaterlier's principle, and apply concepts to solutions od buffers.
9. Describe intermolecular forces and sketch and interpret simple phase diagrams.
10. Elucidate general principles of solubility and colligate properties of solutions.
11. Classify, name and write the structure of organic compounds and state functional groups.
12. Explain bonding and isomerism in alkanes, predict and write reaction of organic compounds.

13. Explain facts, terms, principles and concept of the cell biology and elementary Genetics.
14. Explain the sources of interspecies and interspecies variations
15. Describe, draw and label anatomical structures of plant and animal tissues, organs and systems
16. Explain the functions of plant and animal tissues, organs and systems
17. Describe the function-structure relationship
18. State and explain biological facts, terms, principles and concepts.
19. Describe the visible and anatomical structures of seed plants and mammals and their functions, and demonstrate an understanding of the basis of variation in structure.
20. Describe the structure and function of plant and animal body systems.
21. Explain the structure-function relationships

COURSE LEARNING OUTCOMES

1. Perform stoichiometric calculations and write acid -base, precipitation and redox reactions
2. Apply the ideal gas and use to kinetic theory and application to real gases.
3. Demonstrate an understanding of reaction enthalpy, its determination using calorimetric and Hess "Law.
4. Demonstrate **understanding** of chemical formulae, reactions and equations
5. Use correct scientific methods to analyse samples for chemical properties and composition.
6. Discuss qualitatively the uncertainties/errors in chemical experiments, and show of significant numbers.
7. Demonstrate skills in handling equipment/glassware, in making observations, recording and analysis of data.
8. Apply the knowledge of chemistry in the handling of materials such as wastes, from the environment
9. Demonstrate skills in handling simple equipment/glassware, in making observations, recording and analysis of data
10. Discuss factors influencing the rate of reaction, and apply the rate law, and Arrhenius equation.
11. Write a comprehensive report (including a critical evaluation of the results) about chemical experiments
12. Demonstrate understanding of biological facts, terms, principles and concepts
13. Distinguish between cell types and describe and state the functions of the various cell organelles and other cell component.
15. Use light microcopy and other techniques in the study of cells.
16. Solving simple genetics problems such as monohybrid and dihybrid inheritances and testing the validity of such information and of experimental results by use the chi-square.
17. Demonstrate precision in practical techniques including accurate observation and recording.
18. Draw conclusions and make inferences
19. Handle, assess and evaluate non-numerical biological information
20. Accurately carry out practical, including accurate observation and recording
21. Write a concise, coherent and logical scientific report of experimental results
22. Apply biological knowledge and principles in handling, assessing and evaluating non-

numerical biological information

23. Use biological analysis to drawing conclusions and making inferences.
24. Demonstrate precision in practical techniques including accurate observation and recording.
25. Write a concise and coherent scientific report based on the biological analytical results

COURSE CONTENT:

UNIT ONE: APPLIED CHEMISTRY

1.1 Stoichiometry

- 1.1.1 Measurements; significant figures, units and unit conversion, uncertainties in experiments.
- 1.1.2 Elementary idea of atoms, molecules and ions; Atomic structure; Relative atomic mass and relative molecular mass; the mole concept, Avogadro 's number.
- 1.2.3 Chemical formula:
 - Empirical, molecular and structural formulae
 - Determination of empirical and molecular formulae from percentage composition: Atomic mass from percentage composition
- 1.2.4 Mass or mole relations of reactants and products in a chemical reaction; Reactions in solution; Molarity, Reactions involving acids and bases, titrations 's.
- 1.2.5 Reaction types; Bronsted- Lowry definition of acids and bases; Oxidation-reduction reactions; Oxidation number; Balancing of Oxidation-reduction reactions equations; calculations involving precipitation and oxidation-reduction reactions.

1.2 Electrochemistry

- 1.2.1 Electrochemistry
- 1.2.2 Laws of electrolysis
- 1.2.3 Cells: Reduction potentials
- 1.2.4 Electrochemical reactions
- 1.2.5 Nernst equation
- 1.2.6 Corrosion

1.3 Physical states of matter

- 1.3.1 Nature of solids, liquids and gases
- 1.3.2 The gas laws:
 - 1.3.3 Avogadro 's or Gay-Lussac 's laws
 - 1.3.4 Law of partial pressure in gas mixtures
 - 1.3.5 Graham 's law of diffusion
 - 1.3.6 Elementary treatment of the kinetic theory of gases
 - 1.3.7 Van de Waals equation; Liquefaction.

1.4 Chemical bonding, structure and shape of molecules

- 1.4.1 Ionic and covalent bonding
- 1.4.2 Lewis structures, resonance; shapes of molecules, VSEPR theory; polar mole; hybridization.
- 1.4.3 Periodic Table; metals, non-metals, metalloids; trends in ionization potential; electron affinity and electronegativity.

1.5 Thermo chemistry

- 1.5.1 Heats of chemical reactions
- 1.5.2 Calorimetric, Enthalpy; Hess 's law; Bond Energy; Lattice Energy.

1.6 Chemical kinetics

- 1.6.1 Reaction rates and their **measurements**
- 1.6.2 Factors influencing rates of reactions
- 1.6.3 Rate equation or Rate law

- 1.6.5 Theory of reaction rates
- 1.6.5 Activation energy and activated complex
- 1.6.6 Rate determining steps
- 1.6.7 Catalysis

1.7 Equilibrium

- 1.7.1 Equilibrium, phase and chemical equilibrium; solubility product contents
- 1.7.2 Le Chatelier's principle acids and phase; pH, Buffers, titration curves, hydrolysis of salts.

1.8 Intermolecular forces

- 1.8.1 Intermolecular forces: dipole-dipole bonds, polar molecules, dispersion forces; capillary action; viscosity; dimerization of carboxylic acids.
- 1.8.2 Changes of state; vapour pressure; critical point; Clausius-clapeyron equation; phase diagrams.

1.9 Solution and their properties

- 1.9.1 Solution terminology
- 1.9.2 Dilute/concentrated
- 1.9.3 Unsaturated/saturated
- 1.9.4 Weak and strong electrolytes.
 - Concentration units; mass percentage; mole fraction; molarity; molarity
 - Principles of solubility; enthalpy of solution; effect of temperature and pressure on solubility,
 - Henry's Law - Colligative properties: vapor pressure lowering, Raoult 's Law; boiling point elevation; freezing point depression osmotic pressure; electrolytes-Van't Hoff factor.

1.10 Introduction to organic chemistry

- 1.10.1 Classification and nomenclature of organic compounds: classification; a survey of organic functional groups; IUPAC system; naming of alkanes, alkenes, alkynes, alkyl halides, alcohols, and cycloalkanes.
- 1.10.2 Bonding in organic compounds; a non-mathematical treatment of covalent bonding; molecular orbital; orbital hybridization; sp, sp^2, sp^3 orbital with respect to (a) C-C-, C-H, C-N, C-O, carbon halogen, N-H and O-H bonds, and (b) benzene; polarizability of covalent bonds; coordinate bonds; concept of resonance.
- 1.10.3 Isomerism; structure isomerism; basic treatment of cis-trans isomerism with reference to C-C and cycloalkanes only.
- 1.10.4 Hydrocarbons: structure, physical properties and reactivity; Combustion of hydrocarbons; Reactions; Mechanism of halogenation, orientation and relative reactivities of alkanes toward halogenations; Synthesis of alkanes via Grignard reagents and lithium dialkylcuprates; Pyrolysis -cracking of petroleum; Wimple treatment of fractional distillation.

UNIT TWO: APPLIED BIOLOGY

2.1 Cell biology:

2.1.1 Cell structure and division

2.1.2 An elementary study of chromosome structure

2.1.3 Nucleic acids (DNA, RNA) structure and role in protein synthesis: enzymes and factors regulating enzymatic activity: The mitochondria and cellular respiration.

2.2 Genetics:

2.2.1 Mendelian genetics

2.2.2 Monohybrid and dihybrid inheritance including backcross and test cross; Co-, dominant, incomplete dominant and recessive alleles.

2.2.3 Mendel 's 1st and 2nd Laws.

2.2.4 Chromosomal theory of inheritance

2.2.5 Particulate nature of inheritance

2.2.6 Concept of the gene, genotype, phenotype, relationship between Chromosome, DNA, a gene and an allele.

2.2.7 Extension of Mendelian analysis: Multiple allelism; Qualitative versus quantitative inheritance.

2.2.8 Gene interaction epistasis, hypostasis; modifications of dihybrid phenotypic ratio; recessive epistasis, dominant epistasis, duplicate recessive epistasis Biochemical interpretation of epistasis.

2.2.9 Pleiotropy (non-epistasis interaction).

2.2.10 Variation in gene expression: penetrance and variable expressivities; suppressors, modifiers, lethal genes.

2.2.11 Sex determination in mammals and sex linkage; sex influenced inheritance.

2.2.12 Pedigree analysis.

2.2.13 Chromosomal aberrations: deficiency, duplication, translocation and inversion;

2.2.14 Down's syndrome and "Cri-du-chat" syndrome in man.

TEACHING METHODS

1. Lectures

2. Practical/Laboratory

3. Demonstrations

4. Group discussions

6. Tutorials

NOTIONAL HOURS: 150 HOURS

1. Lectures: 3 hours per week

2. Tutorial: 2 hours per week

3. Practical/Lab: 2 hours session per week

4. Assessment and self-study: 3 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment	40%
1.1 2 Tests (theory)	20%
1.2 2 Assignments/Tutorial quizzes	5%
1.3 Laboratory work	15%
2.0 Final Examinations	60%
2.1 Theory	40%
2.2 Practical	20%

PRESCRIBED READINGS

1. Brady, J.E. and Humiston, G.E. (1986). **General Chemistry: Principles and Structures.** Fourth Edition. John Wiley and Sons
2. A level Biology (the Science of Biology)
3. 'A' level Chemistry

RECOMMENDED READINGS

1. Banda, S. F. and Kumar, G. (1995). **Introductory Chemistry: Part II.** Lusaka: University of Zambia Publications
2. Warren, D. D. (1999). **Biological Investigations.** 6th Edition. New York: McGraw-Hill
3. Herron, J.D. *et al.* (1993). **Chemistry.** Lexington: D.C. Heath and Company
4. Advanced level Chemistry Textbook
5. Advanced 'A' level Biology textbook.

COURSE TITLE: COMPUTER SKILLS AND INFORMATION MANAGEMENT

COURSE CODE: CIM113

INTRODUCTION

This course is designed to help students in problem solving which is an essential skill for life. The course provides students with skills in problem solving in a variety of areas such as business, research, scientific and social contexts. Further students shall be able to manage their information effectively and efficiently.

COURSE AIM

To equip students with knowledge and ability to use computers and technology efficiently including information management.

COURSE OBJECTIVES

1. Describe Information Technology
2. Define hardware and software of the computer system
3. Describe common software packages used for analysing data in research
4. Describe management information system

COURSE LEARNING OUTCOMES

1. Operate the computer system
2. Operate windows operating packages
3. Utilize web technologies
4. Present conclusions effectively, orally and in writing
5. Analyse data using computer software packages
6. Demonstrate a basic level of competency in the utilisation of computer programmes and logic skills
7. Send and receive e-mails
8. Utilize electronic media in environmental practices
9. Manage data from health institutions using electronic media

COURSE CONTENT

UNIT ONE: INFORMATION TECHNOLOGY

- 1.1 Introduction to basic computers**
 - 1.1.1 Definition
 - 1.1.2 Characteristics of Computers
 - 1.1.3 Basic Applications of Computer
 - 1.1.4 Windows Operating System

- 1.2 Hardware and software**
 - 1.2.1 Definition of Hardware
 - 1.2.2 Definition of Software

- 1.3 Hardware Components of Computer System**
 - 1.3.1 Input Devices
 - 1.3.2 Output Devices
 - 1.3.3 Storage Devices
 - 1.3.4 Central Processing Unit
 - 1.3.5 Communication Devices

- 1.4 Types of software**
 - 1.4.1 Operating Systems
 - 1.4.2 Application Software
 - 1.4.3 Generalized Application Software
 - 1.4.4 Specialized Application Software
 - 1.4.5 Utility Software

- 1.5 Software packages for statistical data analysis**
 - 1.5.1 SPSS (Statistical Package for Social Sciences)
 - 1.5.2 NVivo
 - 1.5.3 R (R Foundation for Statistical Computing)
 - 1.5.4 MS Excel (Microsoft Excel)
 - 1.5.5 SAS (Statistical Analysis Software)
 - 1.5.6 Epi Info. (Epidemiological Information)

- 1.6 Other Computer Packages:**
 - 1.6.1 Microsoft Office
 - 1.6.2 Spread Sheets
 - 1.6.3 Power Point
 - 1.6.4 Microsoft Access
 - 1.6.5 QuickBooks
 - 1.6.6 Web and Social skills
 - 1.6.7 Graphic and Writing Skills

- 1.7 Internet and E-mail:**
 - 1.7.1 Concept of internet;
 - 1.7.2 Browsing and e-mail;

- 1.7.3 Logging on;
- 1.7.4 Send and receive email; and
- 1.7.5 Sending attachment.

TEACHING METHODS

- 1. Lectures
- 2. Practical/Laboratory
- 3. Demonstrations
- 4. Group discussions
- 6. Tutorials

NOTIONAL HOURS: 100 HOURS

- 1. Lectures: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Practical/Lab: 2 hours session per week
- 4. Assessment and self-study: 1 hour per week

ASSESSMENT METHODS

- | | |
|----------------------------------|-------------|
| 1. Continuous assessment: | 40 % |
| 1.1 2 Tests: | 20% |
| 1.2 2 Assignments: | 10% |
| 1.3 Computer labwork | 10% |
|
 | |
| 2. Final Examinations: | 60% |
| 1.0 Theory: | 40% |
| 1.1 Practical | 20% |

PRESCRIBED READINGS

- 1. Guffey, M. E. (2007). **Essentials of Business Communication**. 7th edition, Thomson Southwestern.
- 2. Hybels, S. & Weaver, R. (2004). **Communicating Effectively**. 7th Ed. Boston. McGraw Hill
- 3. Norton, P. (2002). **Introduction to Computers**. 5th Edition, Glencoe/McGraw-Hill

RECOMMENDED READINGS

- 1. Cottrell, S. (2001). **Teaching Study Skills and Supporting Learning**. Hampshire: Palgrave Publisher.
- 2. Epstein, R. L. (2001). **Critical Thinking**. Victoria: Wadsworth Publisher
- 3. Feldman, R. S. (2000). **Power Learning: Strategies for Success in College and Life**. Boston: McGraw-Hill.

COURSE TITLE: COMMUNICATION SKILLS AND ACADEMIC WRITING

COURSE CODE: CSA 114

INTRODUCTION

This course provides foundation for students to adequately communicate effectively by utilizing different options available. Further, the course introduces students to effective academic writing to enable them write scientific papers and other academic documents.

COURSE AIM

To equip students with knowledge and ability in communication and academic writing skills

COURSE OBJECTIVES

1. Describe communication.
2. Explain types of communication
3. Explain academic writing
4. Define plagiarism
5. Explain the consequences of committing plagiarism
6. Elucidate different methods of citations in the text
7. Write references in line with Harvard System of Referencing

COURSE LEARNING OUTCOMES

1. Elucidate types of communication
2. Illustrate methods of communication
3. Illustrate communication process
4. Cite authority in the text
5. Demonstrate an understanding of the consequences of plagiarism
6. Explain tips of avoiding plagiarism
7. Provide references in a prescribed form in accordance with Harvard System of Referencing

COURSE CONTENT

UNIT ONE: COMMUNICATION SKILLS

2.1 Introduction to communication skills

- 2.1.1 Definition of communication
- 2.1.2 Types of communication
- 2.1.3 Elements of communication (message, sender and receiver)
- 2.1.4 Advantages of good communication
- 2.1.5 Factors that Promote communication
- 2.1.6 Factors that hinder communication
- 2.1.7 Effective communication

2.2 Functions of communication:

- 2.2.1 Entertainment; Information; Education;
- 2.2.2 Persuasion/mobilization; and
- 2.2.3 Development (social, political, economic).

2.3 Group dynamics

- 2.3.1 Group dynamics in communication; and learning process.

UNIT TWO: ACADEMIC WRITING

2.1 Academic writing:

- 2.1.1 Essay Writing;
- 2.1.2 Citations;
- 2.1.3 Referencing

2.2 Examination skills

- 2.2.1 Preparation for examinations
- 2.2.2 Understanding active words used in examination questions

2.3 Plagiarism

- 2.3.1 Definition of plagiarism
- 2.3.2 Types of plagiarism: direct plagiarism, self-plagiarism, mosaic plagiarism; accidental plagiarism
- 2.3.3 Consequences of committing plagiarism by:
 - Students
 - professionals
 - academics and researchers
- 2.3.4 Legal consequences of committing plagiarism
- 2.3.5 Tips for avoiding plagiarism

TEACHING METHODS

1. Lectures
2. Practical/Laboratory
3. Demonstrations
4. Group discussions
6. Tutorials

NOTIONAL HOURS: 90 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Seminar: 1 hour per week
4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment	40%
1.1 2 Tests (theory)	20%
1.2 2 Assignments/Tutorial quizzes	5%
1.3 Laboratory work	15%
2.0 Final Examinations	60%
2.1 Theory	40%
2.2 Practical	20%

PRESCRIBED READINGS

1. Guffey, M. E. (2007). **Essentials of Business Communication**. 7th edition, Thomson Southwestern.
2. Hybels, S. & Weaver, R. (2004). **Communicating Effectively**. 7th Ed. Boston. McGraw Hill

RECOMMENDED READINGS

1. Cottrell, S. (2001). **Teaching Study Skills and Supporting Learning**. Hampshire: Palgrave Publisher.
2. Epstein, R. L. (2001). **Critical Thinking**. Victoria: Wadsworth Publisher
3. Feldman, R. S. (2000). **Power Learning: Strategies for Success in College and Life**. Boston: McGraw-Hill.

COURSE TITLE: APPLIED SOCIO-PSYCHOLOGY
COURSE CODE: PHS 115

INTRODUCTION

This course is designed to help students understand the social conditions that affect psychological wellbeing and to describe the process linking the social conditions to their psychological effects. The course also assists the students to develop a framework for understanding the different psychological approaches as they apply to Public health.

COURSE AIM

To equip students with knowledge, skills and attitudes for socio-psychological application in Public health.

COURSE OBJECTIVES

1. Describe the scope and basic approaches in sociology.
2. Describe the influence of cultural beliefs and practices on human behaviour and health
3. Outline the importance of socialisation and social networks in health
4. Explain the concept of social stratification
5. Describe the concept of sociology applied to health
6. Describe the scope and basic approaches in psychology
7. Outline the interactions between motivation and behaviour
8. State learning and memory enhancing techniques
9. Explain emotions in relation to health

COURSE LEARNING OUTCOMES

1. Describe the process of socialisation
2. Explain the importance of social networks in Public health related activities
3. Apply the concept of sociology applied to Health
4. Demonstrate knowledge on of how culture influences health.
5. Identify social and behavioural aspects of emotions
6. Compare personality theories
7. Identify main features of a personality theory
8. Illustrate how built environment relates to socio-psychological aspects
9. Define social epidemiology
10. Explain the influence of cultural beliefs and practices on human behaviour and health
11. Display sensitivity in dealing with communities
12. Analyse the relationship between human behaviour and diseases
13. Summarise the history and common approaches in psychology
14. Describe the relationship between socio-psychology and other professions
15. Define motivation
16. Explain theories of motivation
17. Assess the interaction between motivation and behaviour
18. Identify mental processes and factors involved in learning and memory

COURSE CONTENT

UNIT ONE: SOCIOLOGY

1.1 Introduction to Sociology:

- 1.1.1 Definition of Sociology
- 1.1.2 Sociological perspectives and relevance to public health
- 1.1.3 Sociological inquiry

1.2 Culture:

- 1.2.1 Definition;
- 1.2.2 Components of culture;
- 1.2.3 Importance/function of culture;
- 1.2.4 Factors of culture change;
- 1.2.5 Subculture;
- 1.2.6 Deviant behaviour;
- 1.2.7 Cultural influence on health
- 1.2.8 Social stigma.

1.3 Socialization:

- 1.3.1 Definition;
- 1.3.2 Process
 - 1.3.2.1 Agent: Family; Marriage; Religion; Economy System; Political system; and Education

1.4 Social stratification:

- 1.4.1 Definition;
- 1.4.2 Class;
- 1.4.3 Race;
- 1.4.4 Ethnicity; and
- 1.4.5 Sex and Gender.

1.5 Sociology applied to Health:

- 1.5.1 Introduction;
- 1.5.2 Health as a social concept;
- 1.5.3 Social basis of disease;
- 1.5.4 Social role of preventive medicine;
- 1.5.5 Social factors in disease aetiology;
- 1.5.6 Health and Society;
- 1.5.7 Society and Public health; and
- 1.5.8 Social epidemiology.

UNIT TWO: PSYCHOLOGY

2.1 Introduction to Psychology:

- 2.1.1 Historical perspectives;
- 2.1.2 Applications and relations to other professions;
- 2.1.3 Approaches in psychology:
 - 2.1.3.1 New biological approach

- 2.1.3.2 Humanistic approach
- 2.1.3.3 Psycho analysis
- 2.1.3.4 Behaviourism
- 2.1.3.5 Cognitive approach.

2.2 Motivation:

- 2.2.1 Motivation;
- 2.2.2 Maslow's hierarchy of needs;
- 2.2.3 Cultural influence on motivation;

2.3 Learning and Memory

- 2.3.1 Definition:
- 2.3.2 Theories of learning
- 2.3.3 Memory processes and stages
- 2.3.4 Factors influencing forgetfulness
- 2.3.5 Techniques to enhance memory
- 2.3.6 Study techniques

2.4 Emotions:

- 2.4.1 Emotions;
- 2.4.2 Psychological bases of emotions;
- 2.4.3 Behavioural aspects of emotions;
- 2.4.4 Physiological bases of emotions; and
- 2.4.5 Theories of emotion.

2.5 Personality:

- 2.5.1 Personality;
- 2.5.2 Strategies for studying personality;
- 2.5.3 Personality theories; and
- 2.5.4 Heredity & environmental

2.6 Engineering and Environmental Psychology:

- 2.6.1 Definitions;
- 2.6.2 Industrial safety and accident prevention; and
- 2.6.3 The built environment and related problems.

2.7 Community Psychology:

- 2.7.1 Defence mechanisms
- 2.7.2 Individual and family counselling.

UNIT THREE: PSYCHO-SOCIAL COUNSELLING

Definition

- 3.2. Principles of Counselling
 - 3.2.1 Types of counselling
 - 3.2.2 Counselling Process
 - 3.2.3. Counselling Skills
- 3.3. Qualities of a Counsellor
- 3.4. Support Groups

TEACHING METHODS

- 1. Lectures
- 2. Case study
- 3. Role play
- 4. Demonstrations
- 5. Group discussions

NOTIONAL HOURS: 90 HOURS

- 1. Lectures: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Seminar: 1 hour per week
- 4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

- | | |
|----------------------------------|-------------|
| 1. Continuous assessment: | 40 % |
| 1.1 2 Tests: | 30% |
| 1.2 2 Assignments: | 10% |
| 2. Final Examinations: | 60% |
| 1.1 Theory: | 60% |

PRESCRIBED READINGS

- 1. Ayers, S. and Visser, R. (2011). **Psychology for Medicine**. London: SAGE.
- 2. Openstax College (2013). **Introduction to Sociology**. Texas: Rice University.
- 3. Stangor, C. (2011). **Introduction to Psychology**. Fall.

RECOMMENDED READINGS

- 1. Fieldman, R.S. (2013). **Understanding Psychology. 11th Edition**. New York. McGraw Hill
- 2. Heffernan, C.(2011). **Introduction to Medical Sociology – Lecture**,
<http://www.drcath.net>
- 3. McGowan, F. (2011). **Introduction to Medical Sociology:**
<http://www.icsmsu.com/eec/wp-content/uploads/2011/12/ABS-Sociology.pdf>.

4. Bechtel, R. B., and Churchman, A. (2012). **Handbook of Environmental Psychology**. Washington: Jhn Wiley & Sons Inc.
5. Bradby, H., (2009). **Medical Sociology: An Introduction**. London: Sage.

YEAR ONE SEMESTER TWO

Course Codes	Course Titles
PHS 121	Applied Human Physiology and Anatomy
PHS 122	Applied Human Microbiology, Pathology, Virology and Parasitology
PHS 123	Public Health Policy and Law
PHS 124	Introduction to Public Health
PHS 125	Food Chemistry and Nutrition

COURSE TITLE: APPLIED HUMAN PHYSIOLOGY AND ANATOMY

COURSE CODE: PHS 121

INTRODUCTION

The course provides a background in fundamentals of human anatomy and an understanding of the fundamentals of cellular and systems physiology.

COURSE AIM

To equip students with knowledge and skills of the functions of human anatomy and physiology on different human systems

COURSE OBJECTIVES

1. Define key terms in physiology
2. Describe the structure and function of cells, including cellular metabolism and reproduction
3. Describe the structure and function of tissues and glands of various systems
4. Explain the skeleton system
5. Describe the muscular system
6. Explain blood circulatory system
7. Explain the lymphatic system
8. Describe the respiratory system
9. Describe the digestive system
10. Explain the excretory system (kidneys and skin)
11. Describe the reproductive system:
12. Describe the nervous system
13. Explain sense organs

COURSE LEARNING OUTCOMES

1. Identify anatomical structures on models, diagrams or the human body
2. Describe the physiological functions of the human body
3. Illustrate various types of body systems
4. Explain major components of human body systems
5. Relate the structure of the systems to their functions
6. Elucidate the significance of the physiological and anatomical components of the body systems
7. Identify various organs of the human body
8. Illustrate anatomical parts of the various organs of the human body.
9. Illustrate the muscular system by identifying different types of muscles
10. Elucidate different types of joints
11. Discuss the physiology and mechanism of respiration factors affecting or controlling respiration
12. Relate the functions body systems to the nervous systems
13. Identify the sensory organs
14. Illustrate the human reproductive system
15. Apply practical knowledge on real or assimilated objects

COURSE CONTENT

1. Human Anatomy and Physiology

1.1 Introduction to anatomy and physiology

- 1.1.1 The cell
- 1.1.2 Levels of structural organization

1.2 Integumentary system

- 1.2.1 Skin
- 1.2.2 Hair
- 1.2.3 Glands

1.3 Skeletal system

- 1.3.1 Structure of the skeleton
- 1.3.2 Bone formation
- 1.3.3 Bone growth, Joints

1.4 Muscular system

- 1.4.1 Types and function
- 1.4.2 Skeletal muscle
- 1.4.3 Cardiac muscle
- 1.4.4 Smooth muscle
- 1.4.5 Movement muscle

1.5 Nervous system

- 1.5.1 Organization of the nervous system
- 1.5.2 Histology of the nervous system
- 1.5.3 Physiology of the nervous system
- 1.5.4 Central nervous system

1.6 Special sense organs

- 1.6.1 Eyes
- 1.6.2 Tongue
- 1.6.3 Nose
- 1.6.4 Ear

1.7 Cardiovascular system

- 1.7.1 Blood, Blood vessels
- 1.7.2 Blood reservoir
- 1.7.3 Structure of the heart
- 1.7.4 Conduction system of the heart
- 1.7.5 Cardiac cycle
- 1.7.6 Physiology of circulation

1.8 Lymphatic system

- 1.8.1 Lymph

- 1.8.2 Lymphatic vessels
- 1.8.3 Lymphatic tissues
- 1.8.4 Lymphatic circulation

1.9 Respiratory system

- 1.9.1 Upper and lower respiratory tract
- 1.9.2 Respiration
- 1.9.3 Control of respiration

1.10 Digestive system

- 1.10.1 Oesophagus and stomach
- 1.10.2 Small and large intestine

1.11 Reproductive system

- 1.11.1 Male reproductive systems
- 1.11.2 Female reproductive systems
- 1.11.3 Hormonal control of the reproductive system
- 1.11.4 Embryology

1.12 Endocrine system

- 1.12.1 Pituitary gland
- 1.12.2 Pineal gland
- 1.12.3 Parathyroid
- 1.12.4 Thyroid
- 1.12.5 Pancreas
- 1.12.6 Adrenals

1.13 Urinary system

- 1.13.1 Kidney
- 1.13.2 Bladder
- 1.13.3 Nephron
- 1.13.4 Urethra

TEACHING METHODS

1. Lectures
2. Group discussions
3. Practical
4. Demonstrations
5. Field visits

NOTIONAL HOURS: 150 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Practical/Lab: 2 hours session per week
4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1. Continuous assessment: 40%

- 1.1 2 Tests: 20%
- 1.2 2 Assignments: 10%
- 1.3 Practical 10%

2. Final Examinations: 60%

- 2.1 Theory: 40%
- 2.2 Practical: 20%

PRESCRIBED READINGS

1. Elaine, N.M. and Katia, N.H. (2015). **Anatomy and Physiology**. 10th Edition. London: Churchill Livingstone
2. Gerald, J.T. (2013). **Principle of anatomy and physiology. Atlas of skeleton set**. 8th Edition. Washington: Saunders
3. Saladi K. (2014). **Anatomy and physiology**. 5th edition. New Delhi: Jaypee brothers.

RECOMMENDED READINGS

1. Frederic, A.M and Judil, N. (2014). **Fundamentals of Anatomy and Physiology**. 10th Edition. Washington: Saunders.
2. JayaranPanika, C. K. (2015). **Human physiology: An intergrated**, 3rd Edition. New Delhi: Jaypee Brothers.
3. Tortora, J. &Derrickson B. (2014). **Principles of anatomy and physiology**. 14th edition: John Wiley and Sons inc.

**COURSE TITLE: APPLIED HUMAN IMMUNOLOGY, MICROBIOLOGY,
PATHOLOGY, VIROLOGY, MYCOLOGY AND PARASITOLOGY**

COURSE CODE: PHS 122

INTRODUCTION

The course provides the students with basic knowledge and understanding of various organisms and their effects on the human body and the environment.

COURSE AIM

To enable students acquire knowledge, skills and attitudes in human immunology, microbiology, parasitology, and pathology.

COURSE OBJECTIVES:

1. Define key terms and concepts
2. Describe the molecular and cellular components that comprise the immune system
3. Elucidate function and interactions of the molecular and cellular components of the immune system
4. Describe the different types of microorganisms of public health significance
5. Explain methods of infection prevention
6. Explain the different classification of parasites
7. List the various parasites that causes human disease
8. Describe the pathogenesis of parasitic diseases
9. Discuss the Host-Agent response in clinical disease manifestation in humans.
10. Describe the factors that influence the geographical distribution of parasites
11. Identify common parasites affecting humans
12. Describe common Pathological disorders, and their management.

COURSE LEARNING OUTCOMES

1. Demonstrate an understanding of the molecular and cellular components that comprise the immune system, including their function and interaction
1. Classify the different types of microorganisms
2. Handle laboratory equipment and specimen safely.
3. Apply the knowledge acquired for use of Microbiology in Public health
4. Explain the concepts in general pathology
5. Demonstrate an understanding of pathological processes of communicable and non-communicable diseases.
6. Collect water samples for microbial investigation and take appropriate action
7. Collect specimen for parasitic investigation and take appropriate action
8. Explain the diagnostic procedures in pathology
9. Discuss immune responses to parasitic infections
10. Conduct microscopic investigations for identification of various parasitic organisms
11. Illustrate the structure of bacteria and its growth
12. Classify pathological disorders including their management

COURSE CONTENT

2. Immunology

2.1 Innate immunity

- 2.1.1 Non-specific Immunity, physical, chemical and biological
- 2.1.2 Acute inflammatory reaction
- 2.2.3 Leukocytes, Complementary system

2.2 Cells of adaptive immunity

- 2.2.1 B-cells and their functions
- 2.2.2 T- cells and their functions

2.3 The immune system in health and disease

- 2.3.1 Interaction between innate and adaptive immunity
- 2.3.2 Escape strategies

2.4 Disorders of immunity

- 2.4.1 Hypersensitivity reactions
- 2.4.2 Auto-immune diseases, Immunodeficiency
- 2.4.3 Tumour immunology

3. Microbiology

3.1 Microbial physiology

- 3.1.1 Structure of bacteria
- 3.1.2 Classification of bacteria
- 3.1.3 Bacterial growth
- 3.1.4 Normal microbial flora
- 3.1.5 Bacteria of medical importance

3.2 Bacterial pathogenesis and host resistance to infection

- 3.2.1 Basis of bacterial pathogenicity
- 3.2.2 Host resistance to infection
- 3.2.3 Principles of serological diagnosis

3.3 Use of microbiology in public health

- 3.3.1 Microbiology of water, food and air

3.4 Technical methods in microbiology, related to water and airborne diseases

- 3.4.1 Sterilization and disinfection

4. Medical parasitology

4.1 Pathogenesis of parasitic diseases

- 4.1.1 Etiology
- 4.1.2 Disease processes due to parasites
- 4.1.3 Immunity and immune responses to parasitic infections.
- 4.1.4 Parasite evasion of the immune system

4.2 Protozoology

- 4.2.1 Haemoprotozoa (plasmodium and trypanosomes)
- 4.2.2 Intestinal amoebae, Intestinal flagellates

4.3 Helminthology

- 4.3.1 Nematodes
- 4.3.2 Trematodes
- 4.3.3 Cestodes

5. Virology

5.1 Classification of viruses

5.2 Morphology and structure

5.3 Pathogenicity of viruses

5.4 Viruses and Human tumours

5.5 Common viruses:

5.5.1 Enterovirus infections

5.5.2 Measles

5.5.3 Ebola

5.5.4 Acute Viral Respiratory diseases

5.5.5 Arthropod viral diseases (Dengue, Yellow fever, and West Nile fever)

5.5.6 Retrovirus

5.6 Immunisations and virus.

6. Mycology

6.1 Mycoses physiology

6.1.1 Structure of fungi

6.2 Pathogenesis

6.3 Dermatomycoses

6.3.1 Tinea pedis

6.3.2 Tinea cruris

6.3.3 Tinea corporis

6.3.4 Tinea capitis

6.4 Systematic mycoses

6.4.1 Cryptococcus

6.4.2 Candidacies

6.4.3 Mycetoma aspergillus

5.5 Subcutaneous mycoses

TEACHING METHODS

1. Lectures
2. Group discussions
3. Practical
4. Demonstrations
5. Field visits

NOTIONAL HOURS: 150 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Practical/Lab: 2 hours session per week
4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1. Continuous assessment: 40%

1.1 2 Tests: 20%

1.2 2 Assignments: 10%

1.2.3 Practical 10%

2. Final Examinations:	60%
2.1 Theory:	40%
2.2 Practical:	20%

PRESCRIBED READINGS

1. Abbas, R. (2007). **Basic pathology**. 8th edition. Washington: Saunders Elsevier.
2. Ramnik, S. (2012). **Medical Laboratory Technology**. 5rd edition. New Delhi: Jaypee brothers.
3. Roitt, B and Male, D. (2001). **Immunology**. 6th Edition. London: Mosby.

RECOMMENDED READINGS

1. Grdon, C and Alimudlin, Z. (2003). **Manson's Tropical disease**. 21stEdition. Washington: Elst, Saunders.
2. Jawetz, E. Melnick, J. A. (2010). **Review of Medical Microbiology**. 16th Edition. Lange ISBN: 0-87041-053-9.
3. Jayaran-Panika .C. K. (2011). **Text Book of medical Parasitology**. 4rd edition, New Delhi: Jaypee brothers.

COURSE TITLE: PUBLIC HEALTH POLICY AND LAW

COURSE CODE: PHS 123

INTRODUCTION

Public health law examines the authority of the government at various jurisdictional levels to improve the health of the general population within societal limits and norms. Public health law focuses on the duties of the government to achieve these goals, limits on that power, and the population perspective. This broader area of public health law applies legal tools to public health problems associated with disease and injury. The state's legal powers and duties, in collaboration with its partners, to ensure the conditions for people to be healthy, and limits on the state's power to constrain individual rights.

Practitioners apply legislation, regulation, litigation and international law to public health problems using the law as an instrument of public health. Public health law also focuses on legal issues in public health practice and on the public health effects of legal practice. Public health pursues high levels of health, consistent with social justice.

COURSE AIM

To enable students acquire knowledge and skills in health sector management and interpretation of relevant and appropriate public health legislation and how to address their legal implications.

COURSE OBJECTIVES:

1. Outline public health laws
2. Outline the principles of public health laws
3. Demonstrate various legislations in public health law
4. Describe the principles of ethical debate and behaviour
5. Explain the public health ethics

COURSELEARNING OUTCOMES

1. Interpret various public health legislations
2. Enforce public health laws
3. Identifies public health violations and report to relevant authorities for prosecution

COURSE CONTENT

1. Introduction to law

- 1.1 The nature of law.
- 1.2 **Sources of law:** Legal and subsidiary sources of law.
- 1.3 Interpretation of Statutes Cap. 2.
- 1.4 **Judicial systems:** Structure of courts and legal systems, forms of liability, civil actions, arbitration, court personnel, legal processes and tribunals.
- 1.5 Language and technique of law.
- 1.6 Court systems and procedures.
- 1.7 Administrative law.

2. Constitution

- 2.1. Basic constitutional principles.
- 2.2. The Constitution of Zambia.
- 2.3. Delegated legislation.
- 2.4. Administrative tribunals.
- 2.5. Judicial review of administrative action and remedies

3. Principles of law

- 3.1. Law of contract: A contract definition, essentials of a contract, validity of a contract, formation of a contract, discharging of a contract, breach of a contract and remedies.
- 3.2. Offer and acceptance: Valid offer, termination of offer, intention to create a legal relationship and valid acceptance, etc.
- 3.3. Consideration of: Terms, mistakes, mis-representation, duress and undue influence of contract.
- 3.4. Law of tort.

4. Law of evidence

- 4.1. Refutable evidence: source of law of evidence, admissibility, relevance and weight, direct and circumstantial evidence.
- 4.2. Burden and standard of proof: Legal burden and standard of proof.
- 4.3. Presumptions: Marriage, death, legitimacy and negligence.
- 4.4. Competence and comparability of witnesses.
- 4.5. Examination of witnesses.

5. Various laws related to public health

- 5.1. **History of Public health law.**
- 5.2. **Environmental and occupation health laws:** Public health Act. Cap. 295; Food and drugs Act. Cap. 303; Environmental protection and pollution control Act. Cap. 204; Town and country Act. Cap. 283; Local government Act. Cap. 281; Housing Act. Cap. 194; Water Act. Cap. 189; Water supply and Sanitation Act (No. 28 of 1997); Trades Licensing Act. Cap 393; Standards Act. Cap. 416; Factories Act Cap 441; Criminal Procedure Code Act. Cap 88; Penal Code Act. Cap. 113; Hotels Act Cap. 153; Prevention of cruelty to animals Act. Cap. 245; Stock diseases Act. Cap. 252; and regulations there under
- 5.3. Enforcement of environmental health law and relevant related conventions.
- 5.4. Enforcement Agencies and authorisation Local government,

- 5.5. Central government and health boards through;
- 5.6. Health Inspectors, Pharmacy and Poison Inspectors,
- 5.7. Chemical Inspectors, Health and Safety Inspectors and Factory Inspectors

6. Ethical issues in public health:

- 1.1 **Ethical issues in public health:** What should we be doing? For whom should we be doing it; and at what cost to others? And who should decide and how?
- 1.2 **Principles of ethical debate and behaviour:** Autonomy; Beneficence; Non-maleficence; and Justice
- 1.3 **Using framework of ethics in making difficult choices:** Evidence of effectiveness; Equity; and Patient choice

TEACHING METHODS

- 1. Lectures
- 2. Tutorials
- 3. Group discussions
- 4. Field visits
- 5. Demonstrations
- 6. Presentations
- 7. Attending court sessions

NOTIONAL HOURS: 120 HOURS

- 1. Lectures: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Seminar: 2 hours per week
- 4. Assessment and self-study: 3 hours per week

ASSESSMENT METHODS

- | | |
|---------------------------------|------------|
| 1. Continuous assessment | 40% |
| 1.1 2 Tests | 20% |
| 1.2 2 Assignments | 10% |
| 1.3 Court report | 10% |
|
 | |
| 2. Final Examinations | 60% |
| 2.1 Theory | 40% |
| 2.2 Court report | 20% |

PRESCRIBED READINGS

- 1. Alder, J. (1994). **Constitution and Administrative Law**. 2nd Edition. MacMillan. London.

RECOMMENDED READINGS

- 1. Stoker, G. (1991). **The politics of local government**. 2nd Edition. London: MacMillan .1.
- 2. Chandler, J. A. (1996). **Local government today**. 2nd Edition. Manchester: UP.

COURSE TITLE: INTRODUCTION TO PUBLIC HEALTH

COURSE CODE: PHS 124

INTRODUCTION

This is the foundation course designed to prepare competent public health practitioners who are able, through creative and critical thinking and effective communication skills, to enhance the health status and quality of life in local, state, regional, and global communities.

COURSE AIM

To enable students, understand the general principles of public health as a gateway to critical comprehension of the subject matter

COURSE OBJECTIVES:

1. Describes the evolution of public health
2. Defines health and public health
3. Describes the vision, mission, values and core functions of public health
4. Assesses the health of a population
5. Elucidates the impact of compromised public health in the community in relation to health, economic and political impacts

COURSE LEARNING OUTCOMES

1. Demonstrates the understanding of the pillars of Public health
2. Assesses the health of the population
3. Conducts public health impact assessment in the community
4. Identifies factors influencing health service utilization in the community
5. Conducts community diagnosis
6. Demonstrates the understanding of public health threats and their epidemiological significance across the global.
7. Correctly implement prevention measures and interventions in the light of disasters such as outbreak of infectious diseases and those of natural causes

COURSE CONTENT

1.0 INTRODUCTION

1.1 Public Health: Science, Politics and Prevention

- 1.1.1 What is Public Health?
- 1.1.2 Public Health versus Medical Care
- 1.1.3 The Sciences of Public Health
- 1.1.4 Pillars of Public Health
- 1.1.5 Core functions of public health (assessment, policy development, and assurance).
- 1.1.6 Landmarks in the evolution of public health
- 1.1.7 Essential services of public health
- 1.1.8 Assessing the health of the population

1.2 Why is Public Health Controversial?

- 1.2.1 Economic impact
- 1.2.2 Individual liberty
- 1.2.3 Moral and Religious Opposition
- 1.2.4 Political Interference with Science

1.3 SOCIETY AND HEALTH

- 1.3.1 Definitions and concepts
- 1.3.2 Factors influencing health service utilization
- 1.3.3 Provision of health care
- 1.3.4 Components of health care system
- 1.3.5 Zambia's health reforms

1.4 PUBLIC HEALTH IMPACT ASSESSMENT

- 1.4.1 Definition of health impact assessment
- 1.4.2 Assessing health status
- 1.4.3 Assessing health needs
- 1.4.4 Assessing health impacts on a population
- 1.4.5 Health monitoring and evaluation of health programs
- 1.4.5 Interventions for prevention

1.4 CONCEPT OF COMMUNITY DIAGNOSIS.

- 1.5.1 Definition of a community
- 1.5.2 Definition of community diagnosis
- 1.5.3 Process of Community diagnosis
- 1.5.4 Health indicators

1.6 PUBLIC HEATH THREATS IN DEVELOPING COUNTRIES

- 1.6.1 Defining public health threats and their epidemiological significance
- 1.6.2 Prevention and interventions

TEACHING METHODS

1. Lectures
2. Tutorials
3. Demonstrations
4. Group discussions
5. Case studies

NOTIONAL HOURS: 80 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Seminar: 1 hour per week
4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment:	40 %
1.1 2 Tests:	30%
1.2 2 Assignments:	10%
2.0 Final Examinations:	60%
2.1 Theory:	60%

PRESCRIBED READINGS

1. National Institute of Health. (2011). **Principles of Community Engagement**, 2nd Edition. Durhan: National Institute of Health Publications

RECOMMENDED READINGS

1. Truglio-Londrigan, M. and Lewenson, S. B. (2013). **Public Health Nursing: Practicing Population – Based Care**. New York: Jones and Bartlett Learning

COURSE TITLE: FOOD CHEMISTRY AND NUTRITION

COURSE CODE: PHS 125

INTRODUCTION

The course provides the students with basic knowledge and understanding of various nutritional components, nutritional disorders and how they are resolved in the community.

COURSE AIM:

To equip students with knowledge, skills and attitude to prevent and manage common nutrition related conditions in the community.

COURSE OBJECTIVES:

1. Define key terms in food chemistry and nutrition
2. Explain the importance of nutrients to human health
3. Describe basic organic chemical reactions, activities of enzymes and the processes in the production, processing and storage of animal and plant foods
4. Describe the chemistry and composition of foods
5. Describe the changes that occur when foods are subjected to processing, preservation and storage

COURSE LEARNING OUTCOMES:

1. Draw the basic structures of the main nutrients
2. Provide information on the functions of various nutrients in the human body.
3. Outline the basic metabolism of the main nutrients
4. Relate a mixed diet to the prevention of nutritional disorders

COURSE CONTENT

UNIT ONE: FOOD CHEMISTRY AND NUTRITION

1.0 Introduction

- 1.1 Definition of common terms: food; food chemistry, and nutrition;
- 1.2 World food status: statistical records;
- 1.3 Nutrition status in Zambia: statistical records.

2.0 Carbohydrates

- 2.1 Introduction
- 2.2 Classification and Source
- 2.3 General structure and functions
- 2.4 Digestion and absorption
- 2.5 Basic Metabolism of carbohydrates
 - 2.5.1 Dietary allowance
 - 2.5.2 Glycolysis
 - 2.5.3 Gluconeogenesis
 - 2.5.4 Glycogenolysis
 - 2.5.5 Glycogenesis; Krebs cycle (citric acid cycle);

- 2.6 Disorders of carbohydrate metabolism
- 2.6.1 Diabetes mellitus
- 2.6.2 Lactose intolerance
- 2.6.3 Obesity
- 2.6.4 Deficiency Disorders of Carbohydrates

3.0 Proteins

- 3.1 Introduction
- 3.2 General classification and Sources
- 3.3 Biochemical Classification
- 3.4 Structure and Functions
- 3.5 Digestion and absorption
- 3.6 Basic Metabolism of Proteins
- 3.6.1 Dietary allowances
- 3.6.2 Relationship with carbohydrates metabolism
- 3.7 Common Disorders and Deficiency of Proteins
- 3.7.1 Kwashiorkor
- 3.7.2 Integrated Management of Acute Malnutrition

4. Lipids

- 4.1 Introduction
- 4.2 General Classification and Sources
- 4.3 Structure and Functions
- 4.4 Digestion and absorption
- 4.5 Metabolism and Dietary allowances
- 4.5.1 Linkage between Carbohydrates, Proteins, and Lipids
- 4.6 Common disorders associated with Lipid;
- 4.6.1 Coronary heart disease
- 4.6.2 Hypercholesterolemia.

5.0 Vitamins

- 5.1 Introduction
- 5.2 General Classification and Sources
- 5.3 Properties and Functions
- 5.4 Absorption
- 5.5 Storage
- 5.6 Dietary Allowances
- 5.7 Deficiency disorders
- 5.8 Vitamin Supplementation program

6.0 Minerals

- 6.1 Introduction
- 6.2 General classification of minerals into major and trace minerals
- 6.3 Functions, Absorption, and Dietary Allowances
- 6.4 Common disorders
- 6.5 Mineral Supplementation program
- 6.6 Water

TEACHING METHODS

1. Lectures
2. Group discussions
4. Demonstrations
5. Field visits

NOTIONAL HOURS: 120 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Practical/Lab work: 2 hours per week
4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1. Continuous assessment: 40%

- | | |
|--------------------|-----|
| 1.1 2 Tests: | 20% |
| 1.2 2 Assignments: | 10% |
| 1.3 Practical | 10% |

2. Final Examinations: 60%

- | | |
|---------------|-----|
| 2.1 Theory: | 40% |
| 2.2 Practical | 20% |

PRESCRIBED READINGS

1. Mahan, M.S K. (2011). Krause's **Food and Nutrition Care Process** 14th edition, Amazon
2. Ross, A. C and Caballero, B.M.D. (2012). **Modern Nutrition in Health and Disease**. Amazon.
3. Burgess et al. (2009). **Community nutrition: a handbook for health and development workers**. Oxford: Macmillan Education
4. Boyle, M. A and Holben, D. H (2005). **Community nutrition in action: an entrepreneurial approach**. 4th edition. Brooks Cole.

RECOMMENDED READINGS

1. Escott, S and Stump, M.A. (2011). **Nutrition and Diagnosis Related Care**, Amazon
2. Fada, L.D.N and Pronsky M. Z. (2012). **Food Medical Interactions** Spinal Bound
3. Marie, B.A and Hollen H. D. (2012). **Community Nutrition in Action**, 6th edition Amazon
4. Wardlaw, G.M. (2011). **Contemporary Nutrition**. 8th edition. New York: McGraw Hill
5. Whitney, N.E and Rolfes, R.S. (2012). **Understanding Nutrition**. Amazon
- Nweze, N. (2013). **Community nutrition, planning health promotion and disease prevention**. 2nd edition. Jones and Bartlett Learning.
6. Jay, J. M. (1996). **Modern food microbiology**. 5th Ed. Chapman and Hall

YEAR TWO SEMESTER ONE

Course Codes	Course Titles
PHS 211	Introduction to Public Health Administrative Systems
PHS 212	Water Supply, Sanitation and Hygiene
PHS 213	Medicines and Toxicology
PHS 214	Community Health Services
PHS 215	Medical Entomology and Chemical Safety

COURSE TITLE: INTRODUCTION TO PUBLIC HEALTH ADMINISTRATIVE SYSTEMS

COURSE CODE: PHS 211

INTRODUCTION

This course introduces the students to management concepts and skills in the health care systems. Emphasis will be placed on the management of health services as well as the financial resources and records management systems.

COURSE AIM:

To equip the students with knowledge and skills in management of health service, financial resources and records.

COURSE OBJECTIVES:

1. Describe the organisation of health services in Zambia
2. Discuss office organisation and administration
3. Explain financial resources management
4. Describe the historical development of health services in Zambia.
5. Describe the organizational structure.
6. Describe the health services in other countries.
7. Explain the importance of team work in a health centre for proper functioning of the health care and its activities.
8. Describe the procedures in the management of finances.
9. Explain the importance of maintaining records in health facilities

COURSE LEARNING OUTCOMES

1. Presents diagrammatically organization of health services in Zambia.
2. Demonstrates understanding of the Zambian health system.
3. Demonstrates the governance system of Central Government, Local Government and Local Authorities under the centralized governance system
4. Appreciates health systems in other countries
6. Implements measures that are feasible, practical and cost effective.
 1. Applies accounting principles and policies.
 2. Implements institutional policies on finance management
 3. Plans budgets, account for cash and fixed assets.
 4. Implements budgets.
 5. Account for cash.
 6. Produces reports
 7. Develops a filing system for a facility
 8. Conducts oneself in an acceptable manner as a health professional
 9. Carries out stock evaluation and procure goods and services
 10. Maintains records in health facilities
11. Work as an integrated health team
12. Register fixed assets

COURSE CONTENT

UNIT ONE: HEALTH SERVICES PROVISION

1.0 Management of health services

- 1.1 Nature of organization and structure
- 1.2 Delivery of health services
- 1.3 Planning of health services
- 1.4 Health service integration
- 1.5 Health sector reform

2.0 Organization of health services

- 2.1 Nature of organizations and organization structure
- 2.2 The district health system
- 2.3 Decentralization of health services
- 2.4 Levels of health care

3.0 Delivery of health services

- 3.1 Roles of the health centre and hospital
- 3.2 Public/private provision of health services
- 3.3 Equity in health service delivery
- 3.4 Priority setting in health

4.0 Quality of health services

- 4.1 Key principles
- 4.2 Structure, process and outcome
- 4.3 Quality improvement
- 4.4 Total quality management
- 4.5 Quality assurance

5.0 Leadership

- 5.1 Introduction to communication, management styles and organizational culture
- 5.2 Team building and group dynamics
- 5.3 Providing and receiving feedback
- 5.4 Managing a meeting
- 5.5 Negotiation skills, including analysis of power structures in meetings
- 5.6 Conflict management with emphasis on staff conflicts
- 5.7 Management of change

6.0 Planning

- 6.1 General introduction: Concepts of planning, planning cycle and planning tools
- 6.2 Priority setting, using CEA and participatory techniques
- 6.3 Introduction to Health Financing
- 6.4 Steps in analysing district/hospital plans.
- 6.5 Costing and Budgeting
- 6.6 Monitoring and Evaluation

7.0 District Health System Planning

7.1 Administration of clinics and hospitals

- 7.1.1 Modern concepts in the administration of hospitals
- 7.1.2 Administration of rural and urban hospitals
- 7.1.3 Administration of rural and urban clinics
- 7.1.3 Administration of private and public hospitals

8.0 Health policies

UNIT TWO: OFFICE ORGANISATION AND ADMINISTRATION

2.1 Management Techniques:

- 2.1.1 Principles of administration;
- 2.1.2 Staff management and personal relationship;
- 2.1.3 Terms and conditions of service; and
- 2.1.4 Confidential reports and staff records

2.2 Department Organization (Structure and functions):

- 2.2.1 Central government;
- 2.2.2 Local government;
- 2.2.3 Local Authorities;
- 2.2.4 Scope of Public health section; and
- 2.2.5 Delegation of responsibilities and specialization.

2.3 Vehicles:

- 2.3.1 Care and maintenance;
- 2.3.2 Mileage costing; and
- 2.3.3 Log books and mileage returns.

2.4 Stores and Equipment:

- 2.4.1 Procedure for ordering, care and maintenance of equipment; and
- 2.4.2 Records and inventories-including expendable and non-expendable.

2.5 Records and Returns:

- 2.5.1 Daily dairies;
- 2.5.2 Weekly, monthly quarterly report;
- 2.5.3 Annual reports;
- 2.5.4 Infections and fortifiable disease returns; and
- 2.5.5 Others – public cleansing, malaria control, rodent control, meat inspection etc.

2.6 Filing Systems and Registers:

- 2.6.1 Registers (In-coming, Out-going mail nuisance, Meat inspection, hotels, Dairies etc);
- 2.6.2 Filing (Types of filing systems, Methods, and Reference).

2.7 Statutory Procedures:

- 2.7.1 Council and committee proceedings;
- 2.7.2 Reports to committee and council;
- 2.7.3 Preparation of statutory notice; and
- 2.7.4 Legal action.

UNIT THREE: FINANCIAL RESOURCES MANAGEMENT

- 3.1 Definition of accounting and finance
- 3.2 Introduction to FAMS
- 3.3 Users of accounting information
- 3.4 Accounting: basic concepts of financial management and accounting
- 3.5 Types of businesses
- 3.6 Types of organisational structures
- 3.7 Basic principles of accounting
- 3.8 Accounting assumptions
- 3.9 **System of reporting**
 - 3.9.1 Single entry system
 - 3.9.2 Double entry system
- 3.10 Basis of accounting
- 3.11 Classification of accounts: liabilities; assets; revenue; expenses; and equity
- 3.12 **Budgeting**
 - 3.12.1 Flexible; ZBB; Incremental budget models
 - 3.12.2 Budgeting cycle
- 3.13 **Stock/Inventory Management**
 - 3.13.1 Types of stock
 - 3.13.2 Stock cycle
 - 3.13.3 LIFO; FIFO; AVCO
- 3.14 **Procurement**
 - 3.14.1 Role of the tender committee
 - 3.14.2 Composition of the tender committee
 - 3.14.3 Tender process
- 3.15 **Human Resources Management**
 - 3.15.1 Definition
 - 3.15.2 Responsibilities
 - 3.15.3 Staff payroll administration
- 3.16 **Bank Reconciliations**
 - 3.16.1 Definition
 - 3.16.2 Presented/Unpresented cheques; Bank interests
- 3.17 **Financial Reporting**
 - 3.17.1 Income Statement
 - 3.17.2 Monthly/Quarterly Reports (Income and Expenditure)

TEACHING METHODS

- 1. Lectures
- 2. Tutorials
- 3. Group discussions
- 4. Demonstrations
- 5. Problem based learning

NOTIONAL HOURS: 150 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 2 hours per week
3. Seminar: 2 hours per week
4. Assessment and self-study: 3 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40 %

- | | | |
|-----|---------------|-----|
| 1.1 | 2 Tests | 30% |
| 1.2 | 2 Assignments | 10% |

2.0 Final Examinations 60%

- | | | |
|-----|--------|-----|
| 2.1 | Theory | 60% |
|-----|--------|-----|

PRESCRIBED READINGS

1. Bower, D (2003). **Management of Procurement**. Thomas Telford Ltd
2. Swayne, Linda E. Duncan, W. Jack; Ginter, Peter M. (2008) **Strategic Management of Health Care Organizations**, Cambridge: Blackwell Publishers
3. World Health Organisation (2005) **Strengthening management in low-income countries: lessons from Uganda**, Geneva: WHO Press.
4. Pettinger, R. (1994). **Introduction to management**. London: Macmillan Press, ISBN 0-333-59769-9
5. Amonoo-Lartson, R. et al (1996). **District Health Care: Challenges for Planning, Organization and Evaluation in Developing Countries**. 2nd Edition. London: Macmillan Press, ISBN 0-333-57349-8

RECOMMENDED READINGS

1. World Health Organisation (2006) **Improving Health Services and strengthening health systems**, Geneva: WHO Press,
2. World Health Organisation (2007) **towards better leadership and management in health**, Geneva: WHO Press.
3. World Health Organisation (2008) **Economics and financial management: what do district managers need to know?** Geneva: WHO Press.
4. Huczynski, A.A. and Buchanan, (1991). **Organisational behaviour an introduction text**. 2nd Edition. Prentice Hall. London, UK. ISBN 0-13-639899-5
5. Wolper, Lawrence F. (2004) **Health Care Administration, Planning, Implementing and Managing Organized Delivery Systems** (4th Edition). Gaithersburg, MD: Aspen Publishers. ISBN: 0-7637-31447

COURSE TITLE: WATER SUPPLY, SANITATION AND HYGIENE

COURSE CODE: PHS 212

INTRODUCTION

The course will enable the students to demonstrate requisite knowledge and skills in the management of rural and urban water supply, and Sanitation in Zambia. The course will also highlight the techniques of managing hygiene education programmes at community level including the enforcement of laws related to sanitation

COURSE AIM

To enable students demonstrate the knowledge, skills and attitudes in rural and urban water supply including sanitation and hygiene education approaches in Zambia.

COURSE OBJECTIVES

1. Explain the key concepts used in water supply.
2. Describe the various sources of drinking water
3. Categorise the three types of drinking water quality parameters.
4. Describe measures for protection of rural water supply sources
5. Describe the various stages of a conventional water treatment plant
6. Elucidate household water treatment and safe storage methods
7. Define key concepts used in sanitation
8. Describe improved sanitation facilities
9. Elucidate various hygiene education methods you can recommend at community level
10. Describe the design and construction details of improved sanitation technologies
11. Explain strategies of faecal sludge management
12. Describe hygiene promotion strategies at community level

COURSE LEARNING OUTCOMES

1. Describe the concepts used in water supply.
2. Categorise diseases associated with water in for categories
3. Describe five quantitative service level indicators for water supply
4. Interpret the legal and institutional frameworks for water supply in Zambia
5. Explain the hydrological cycle
6. Identify various water supply sources and technologies.
7. Categorise water supply technologies
8. Recommend appropriate measures for protection of rural water supply sources.
9. Explain the three types of drinking water quality parameters.
10. Describe the various stages of a conventional water treatment plant
11. Explain three common types of water distribution systems
12. Evaluate methods of supplying water
13. Describe measures you can take to prevent contamination of water distribution systems
14. Demonstrate the knowledge of household water treatment methods
15. Explain the importance of safe storage
16. Conduct sanitary inspections of water sources to establish their suitability for use
13. Apply concepts of sanitation during programme implementation
14. Identify appropriate preventive measures against faecal-oral diseases

15. State legal and institutional framework for sanitation in Zambia
16. Enforce laws related to sanitation
17. Analyse various sanitation technologies
18. Illustrate faecal – oral route of transmission
19. Recommend appropriate sanitation technologies to households
20. Advise appropriate sanitation options during an emergency
21. Demonstrate the construction of sanitation technologies
22. Recommend appropriate methods of faecal sludge management
23. Conduct hygiene education at community level

COURSE CONTENT

UNIT ONE: INTRODUCTION TO WATER SUPPLY

- 1.1 Definition of concepts used in water supply; water, supply, and water supply.
- 1.2 Classification of diseases association with water: water-borne diseases; water based diseases; water related diseases; and water washed diseases.
- 1.3 Qualitative service level indicators: quality; quantity; continuity; accessibility; acceptability; and affordability.
- 1.4 Legal and institutional framework for water supply in Zambia; international statutes/policies.

2. Sources of Water

- 2.2 Hydrological cycle
- 2.3 Sources of water: groundwater; surface water; and precipitation (rainfall, glaciers, snow).
- 2.4 Categories of water technologies.
 - 2.4.1 Unimproved water sources (unprotected dug well; unprotected spring; cart with small tank or drum provided by water vendor; tanker truck provision of water; surface water; and bottled water).
 - 2.4.2 Improved water sources (piped water into dwelling, yard or plot, public tap or standpipe; kiosks, tube well or borehole; protected dug well; protected spring; and rainwater collection).

3.0 Protection of Rural Water Supply Sources

- 3.1 Hand dug wells with windlass
- 3.2 Boreholes with a hand pump
- 3.3 Springs
- 3.4 Rain water harvesting

4.0 Drinking-Water Quality Parameters

- 4.1 Selection of drinking-water quality parameters to be included in a surveillance programme.
- 4.2 Microbiological parameters: E-coli, thermotolerant coliforms (faecal coliforms) and total coliforms.
- 4.3 Physical parameters: turbidity, taste, odour, and colour.
- 4.4 Chemicals parameters: nitrate, arsenic, lead, fluoride, iron, manganese, aluminium, pH, residue chlorine, copper and pesticides.

5.0 Conventional Water Treatment and Distribution

- 5.1 Significance of water treatment
- 5.2 Siting of water treatment plants
- 5.3 Water treatment units
 - 5.3.1 Water intake structures
 - 5.3.2 Preliminary treatment
 - 5.3.3 Coagulation and flocculation
 - 5.3.4 Sedimentation
 - 5.3.5 Filtration
 - 5.3.6 Disinfection

- 5.3.7 Clear water well
- 5.4 Water distribution
- 5.5 Types of water distribution systems
 - 5.5.1 Gravity system,
 - 5.5.2 Pumping system
 - 5.5.3 Mixed gravity and pumping system
- 5.6 Systems of supplying water
 - 5.6.1 Constant supply
 - 5.6.2 Intermittent supply

6.0 Household Water Treatment and Safe Storage Methods

- 6.1 Introduction
- 6.2 Household water treatment methods: boiling; point of use chlorination; biosand \ filtration; solar disinfection; three pot system; cloth filtration; and ceramic filtration
- 6.3 Safe storage

7.0 Water Quality Surveillance

- 7.1 Define water quality monitoring and drinking-water quality surveillance
- 7.2 Objectives of drinking-water quality surveillance
- 7.3 Types of approaches to drinking-water quality surveillance
 - 7.3.1 Audit based approach
 - 7.3.2 Direct assessment approach
- 7.4 Legal and institutional framework for drinking-water quality surveillance in Zambia

8.0 Drinking-Water Sampling

- 8.1 Plan for sampling
- 8.2 Sampling frequency criteria (type of sample, season, disease prevalence, risk of contamination, and availability of resources)
- 8.3 Sampling procedures for various drinking water sources (wells, taps, and borehole)
- 8.4 Labelling of water samples
- 8.5 Transportation and storage of samples
- 8.6 Quality assurance and quality control in drinking-water sampling
 - 8.6.1 Multiple sampling
 - 8.6.2 Duplicate samples
 - 8.6.3 Blank sampling

9.0 Drinking-Water Testing Methods

- 9.1 Onsite water quality testing
 - 9.1.1 Observation
 - 9.1.2 Presence/absence tests
 - 9.1.3 Use of portable labs
- 9.2 Offsite / centralised laboratory
- 9.3 Microbiological testing methods**
 - 9.3.1 Presence/absence test
 - 9.3.2 Most probable number test
 - 9.3.3 Membrane filtration test

9.4 Chemical testing methods

- 9.4.1 Volumetric titration
- 9.4.2 Colorimetric methods
- 9.4.3 Atomic absorption spectrometry
- 9.4.4 Chromatography
- 9.4.5 Residual free chlorine test

10. Interpretation and Analysis of Drinking-Water Surveillance Data

- 10.1 Methods of interpreting and analysing water quality surveillance data
 - 10.1.1 Comparison analysis
 - 10.1.2 Trend analysis
 - 10.1.3 Statistical analysis
- 10.2 Format for drinking-water quality surveillance report: introduction; objectives; materials and methods; results; and conclusion & recommendations.

11. Sanitary Inspections

- 11.1 Definition of sanitary inspection
- 11.2 Types of health risks associated with water points
- 11.3 Frequency of sanitary inspections
- 11.4 Sanitary inspection forms
- 11.5 Carrying out sanitary inspections of water supply systems: boreholes with hand pumps; hand dug wells with a windlass; springs; and conventional water treatment plants
- 11.6 Interpretation of sanitary inspection data
- 11.7 Writing sanitary inspection report

UNIT TWO: SANITATION AND HYGIENE

- 1.1 Definition of key concepts in sanitation: sanitation, excreta, blackwater, greywater and brown water.
- 1.2 Reasons why human excreta should be properly managed.
- 1.3 Transmission of faecal-oral diseases (F-diagram)
- 1.4 Preventive measures against faecal-oral diseases
- 1.5 Legal and institutional framework for sanitation in Zambia.

2.0 Siting and Construction of Improved Sanitation Facilities

- 2.1 Definition of “improved” sanitation facilities
- 2.2 Flush toilet
- 2.3 Pour-flush toilet
- 2.4 Siting and construction of ventilated improved pit (VIP) latrine
- 2.5 Siting and construction of pit latrine with slab
- 2.6 Siting and construction of composting toilet
- 2.7 Design, siting and construction of a septic tank and soakaway

3.0 Faecal Sludge Management

- 3.1 Define faecal sludge management
- 3.2 Problems and challenges in faecal sludge management
- 3.3 Main options for pit emptying and faecal sludge transport: manual emptying; and mechanical

emptying.

- 3.1 Options for faecal sludge management: sludge drying beds; composting with organic solid waste; and anaerobic digestion with biogas use.

4.0 Introduction to Wastewater Management

- 4.1 Definition of key concepts: wastewater, sewage, stormwater and municipal wastewater.
- 4.2 Impacts of improperly disposed-off wastewater on human health and the environment
- 543 Legal and institutional framework for wastewater management in Zambia, global policies, strategies and statutes

5.0 Sanitary Fitments

- 5.1 Defining a sanitary fitment as per Public Health (Drainage and Latrine) Regulations
- 5.2 Soil water fitments; water closets, slop-hoppers, urinals, and urinettes.
- 5.3 Waste water fitments; baths, lavatory basins, sinks and housemaids' sinks.
- 5.4 Design and construction of sanitary fitments

6.0 Wastewater Drainage Construction

- 6.1 Defining a drainage system as per Public Health (Drainage and Latrine) Regulations
- 6.2 Types of drainage systems: combined drainage system; and separate drainage system.
- 6.3 Principles of sound drainage construction
- 6.4 Access to drainage system; man-holes and inspection chambers
- 6.5 Traps: waste water trap; soil water trap; gully trap; and intercepting trap.
- 6.6 Inspection and testing of drainage systems: water test; coloured water test; air pressure test, smoke test; and ball test.
- 6.7 Regulations on drainages in Zambia - Public Health (Drainage and Latrine) Regulations

7.0 Wastewater Quality Parameters

- 7.1 Define wastewater quality parameter
- 7.2 Chemicals parameters (BOD, COD, DO, nitrogen, phosphorus, pH)
- 7.3 Physical parameters (turbidity, colour, total dissolved solids, total suspended solids, settleable matter).
- 7.4 Microbiological parameters (E-coli, thermotolerant coliforms and total coliforms).

8.0 Waste Stabilization Ponds

- 8.1 Siting of waste stabilization ponds
- 8.2 Design of waste stabilization ponds
- 8.3 Construction and operation of waste stabilization ponds: anaerobic ponds; facultative ponds; and maturation ponds.

9.0 Conventional Wastewater Treatment

- 9.1 Siting of conventional treatment plant
- 9.2 Stages in conventional wastewater treatment:
 - 9.2.1 Preliminary treatment (screening, comminution, grit chamber and skimming);
 - 9.2.1 Primary sedimentation;
 - 9.2.2 Biological treatment: trickling filters; activated sludge system
 - 9.2.3 Secondary sedimentation;

- 9.2.4 Tertiary treatment;
- 9.2.5 Sludge treatment and disposal

10. Wastewater/Effluent Quality Monitoring

- 10.1 Objectives of wastewater/effluent quality monitoring
- 10.2 Step 1: Develop a wastewater/effluent quality monitoring plan
- 10.3 Step 2: Prepare for sampling
- 10.4 Step 3: Collect samples for laboratory analysis
- 10.5 Step 4: Label and transport samples
- 10.6 Step 5: Laboratory analysis
- 10.7 Step 6: Review results and report

11.0 Wastewater Use in Agriculture

- 11.1 Driving forces to increased use of wastewater in agriculture
- 11.2 Public health risks associated with the use of wastewater in agriculture
- 11.3 Cost-effective strategies for controlling negative public health impacts of wastewater use in agriculture
- 11.4 Wastewater quality monitoring for wastewater meant for use in agriculture:
- 11.5 World Health Organisation (WHO) guidelines for quality of wastewater meant for use in agriculture

12.0 Hygiene Education

- 12.1 Objectives of hygiene education
- 12.2 Scope of hygiene:
 - 12.2.1 Personal hygiene
 - 12.2.2 Household hygiene
 - 12.2.3 Community hygiene
- 12.3 Hygiene educational methods
 - 12.2.1 Participatory Hygiene and Sanitation Transformation (PHAST) methodology:
 - 12.2.2 Community Led Total Sanitation (CLTS) methodology:

TEACHING METHODS

- 1. Lectures
- 2. Practical
- 3. Field visits
- 4. Group discussions

NOTIONAL HOURS: 150 HOURS

- 1. Lectures: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Practical/Laboratory work: 2 hours per week
- 4. Field work: 3 hours per week
- 5. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

1.1 2 Tests	20%
1.2 2 Assignments	10%
1.3 Practical	10%

2.0 Final Examinations 60%

2.1 Theory	40%
2.2 Practical	20%

PRESCRIBED READINGS

1. Kamal, K. (2008). **Handbook on community-led total sanitation**. London: Plan United Kingdom
1. Swiss Federal Institute of Aquatic Science and Technology (2014). **Compendium of sanitation systems and technologies. 2nd edition**. Geneva: Eawag (Sandec).
2. WHO (2000). **Participatory hygiene and sanitation transformation step by step activities**. Geneva: WHO press.
3. Rangwala, S.C., (2015). **Water supply and sanitary engineering**. Gujarat: Charotar Publishing House.
4. World Health Organization (2011). **Guidelines for drinking-water quality**. Geneva: WHO Press.

RECOMMENDED READINGS

1. IWA Publishing (2014). **Faecal sludge management: systems approach for implementation and operation**. London: IWA Publishing.
2. WHO (2013). **Technical notes on drinking-water, sanitation and hygiene in emergencies**. Loughborough: WEDC.
3. UNICEF (2014). **School-Led Total Sanitation: School Facilitator Training Guide**. UNICEF press
4. World Health Organization (2003). **Assessing microbial safety of drinking water**. Geneva: WHO Press.
5. World Health Organization (2007) **Chemical safety of drinking water: assessing priorities for risk management**. Geneva: WHO Press.

COURSE TITLE: MEDICINES AND TOXICOLOGY

COURSE CODE: PHS 213

INTRODUCTION

This course provides students with practical and theoretical knowledge for identifying common damaging drugs, food additives, cosmetics and other chemicals (either intentionally or accidentally environmental pollutants, industrial chemicals) exposed to living organisms in order to assess risk factors and make realistic recommendations for mitigation.

COURSE AIM

To enable students demonstrate the knowledge, skills and attitudes in the safety of medicines and management.

COURSE OBJECTIVES

1. Define drug efficacy as applied in clinical pharmacology
2. Explain the mechanisms of therapeutic effectiveness of a drug in a human body and adverse drug reactions
3. Describe the mechanism of action and pharmacological properties of drugs on various systems of the body
4. Describe modern experimental techniques currently utilized in toxicology
5. Explain the toxicological effects of herbal medicines

COURSE LEARNING OUTCOMES

1. Demonstrate the understanding of the principles of drug efficacy
2. Discuss drug discovery and pharmacological principles and actions
3. Analyze drug effects and toxicology
4. Manage cases of drug poisoning

COURSE CONTENT

1.0 Drug's efficacy

- 1.1 Absorption and distribution
- 1.2 Bio-transformation and elimination
- 1.3 Calculation of doses
- 1.4 Variability in drug response
- 1.5 Adverse drug reactions
- 1.6 Biological action of drugs on membranes, enzymes, receptors, neural and hormonal systems, transmission and modulation

2.0 Systems pharmacology:

- 2.1 Concepts of the properties of drugs and chemicals; their interaction with living systems; and their constituent parts
- 2.1 Mechanism of action and pharmacological properties of drugs acting on: autonomic and central nervous systems, cardiovascular, renal respiratory, gastro-intestinal, immunological; and endocrine systems
- 2.4 Endogenous compounds:
 - 2.4.1 Antimicrobial and anti-inflammatory drugs chemotherapy
- 2.5 Toxicological problems encountered in animals and humans:
 - 2.5.1 Biochemical mechanisms and clinical factors of toxicological models of drug-related Diseases
- 2.6 Modern experimental techniques currently utilized in toxicology:
 - 2.6.1 Experimental design and the analysis of pharmacological and toxicological data
- 2.7 Toxicology of herbal medicines:
 - 2.7.1 Effects that pharmaceuticals and chemicals have on society
 - 2.7.2 Examining traditional and contemporary problems in toxicology

TEACHING METHODS

1. Lectures
2. Tutorials
3. Problem based learning
4. Group discussions
6. Demonstrations

NOTIONAL HOURS: 80 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Seminar: 1 hour per week
4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

- | | |
|---------------------------------|------------|
| 1. Continuous assessment | 40% |
| 1.1 2 Tests | 30% |
| 1.2 2 Assignments | 10% |
| 2. Final Examinations | 60% |
| 2.1 Theory | 60% |

PRESCRIBED READINGS

1. Kutzung,B.(2011).**Basic and clinical pharmacology**. McGrall---Hill.8. Williams,

RECOMMENDED READINGS

1. D.A. (2012). **Foyer's principles of medical chemistry**. Lippincott Williams and Wilkins
2. Dart,R.C.(ed). (2004). **Medical toxicology**. Lippincott Williams and Wilkins.

COURSE TITLE: COMMUNITY HEALTH SERVICES

COURSE CODE: PHS 214

INTRODUCTION

The course is designed to equip students with knowledge, skills, and attitudes to enable them carryout comprehensive community health care services including school health. It will also provides an opportunity to students to comprehend ethical issues regarding community health and to be able to effect health promotion and preventive measures.

COURSE AIM:

To acquire knowledge, skills and attitude in community health practice.

COURSE OBJECTIVES:

1. Explain the concept of Primary Health Care
2. Describe school health services
3. Explain the application of GIS to community health service delivery
4. Describe some of the appropriate technologies that might be applied in rural communities
5. List some of the determinants of health in rural and peri-urban urban communities
6. Elucidate the principles of primary health care in community service
7. Discuss factors affecting community health delivery
8. Describe the process of developing health indicators for communities

COURSE LEARNING OUTCOMES:

1. Conduct community diagnosis
2. Elaborate the basic health services as related to the Primary Health care model in Zambia
3. Illustrate the linkages between the health issues and community health status indicators.
4. Sensitize, Screen and diagnose a Community for Health Services Deliver
5. Apply concept of GIS to Community health services delivery
6. Utilize Public Private Partnership Initiatives (PPPI)
7. Determining the factors affecting community health services delivery
8. Establishing the role of a public, health practitioner in community health services delivery
9. Conduct school health services

COURSE CONTENT

UNIT 1: PRIMARY HEALTH CARE

1.1 Introduction to Primary Health Care

- 1.1.1 Definition of Primary Health Care
- 1.1.2 History of Primary Health Care
- 1.1.3 Goal of Primary Health Care
- 1.1.4 Objectives of Primary Health Care

1.2 Principles of Primary Health Care

- 1.2.1 Accessibility (equal distribution)
- 1.2.2 Community participation
- 1.2.3 Health promotion
- 1.2.4 Appropriate technology
- 1.2.5 Inter-sectoral collaboration
- 1.2.6 Political commitment and
- 1.2.7 Equity and social justice

1.3 Elements of Primary Health Care

- 1.3.1 Education on prevailing health problems and control and prevention methods
- 1.3.2 Promotion of food supply and proper nutrition
- 1.3.3 Adequate supply of safe water and basic sanitation
- 1.3.4 Maternal and child health care, including family planning
- 1.3.5 Immunization against the major infectious diseases
- 1.3.6 Prevention and control of locally endemic diseases
- 1.3.7 Appropriate treatment of common diseases and injuries
- 1.3.8 Provision of essential medical drugs

1.4 Primary Health Care Approaches

- 1.4.1 Selective primary health care
- 1.4.2 Vertical health programs
- 1.4.3 Horizontal health programs

1.5 Components of community health service delivery

- 1.5.1 Role of Public health in community health service delivery
- 1.5.2 Determinants of health in community health services
- 1.5.3 Developing local community health status indicators.
- 1.5.4 Community diagnosis
- 1.5.5 Community mobilisation process
- 1.5.6 Community sensitization
- 1.5.7 community screening
- 1.5.8 GIS and Community Health Delivery
- 1.5.9 Factors affecting community health service delivery

1.6 Introduction to community empowerment

- 1.6.1 Empowerment of women
- 1.6.2 Social safety net initiatives.
- 1.6.3 Cash transfer initiatives.

1.7 Introduction to community work

- 1.7.1 Understanding community volunteers
- 1.7.2 Incentives for community volunteers
- 1.7.3 Supervision of community volunteers
- 1.7.4 Role of traditional leadership in community volunteer selection

UNIT TWO: SCHOOL HEALTH SERVICES

- 1.1 Concept of School Health
- 1.2 Components of School Health Services
- 1.3 Nutrition Service
- 1.4 Information, Education and Communication (IEC)
- 1.5 Accident Prevention
- 1.6 Health Services
- 1.7 Personal Health and Hygiene
- 1.8 Inspection of schools to assess compliance with environmental health standards

TEACHING METHODS

- 1. Lectures
- 2. Practicals
- 3. Group discussions
- 4. Brainstorming
- 5. Role play

NOTIONAL HOURS: 100 HOURS

- 1. Lectures: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Field work: 2 hours per week
- 4. Assessment and self-study: 1 hour per week

ASSESSMENT METHODS

1.0 Continuous assessment	40 %
1.1 2 Tests	20%
1.2 2 Assignments	10%
1.3 Practical	10%
2.0 Final Examinations	60%
2.1 Theory	40%
2.2 Practical	20%

PRESCRIBED READINGS

1. Edelman, C.L; Mandle, C.L and Kudzma, E.C. (2013). **Health Promotion throughout the lifespan**. Elsevier.
2. Laverack, G. (2004). **Health Promotion Practice (Power and Empowerment)**. London: SAGE Publication
3. Naidoo, J and Wills, J. (2009). **Health Promotion Foundations for Practice**. London: BaillierTindall

RECOMMENDED READINGS

1. Barrachough, S. (2007). **Analysing Health Policy: A problem oriented Approach**. Elsevier
2. Wearner, D and Brown, B. (2000). **Helping health workers learn**. Berkely: Hesperion Foundation.
3. Hubley, J. (2008). **Communicating Health**. Oxford: Macmillan Publisher

COURSE TITLE: MEDICAL ENTOMOLOGY AND CHEMICAL SAFETY

COURSE CODE: PHS 215

INTRODUCTION

The course is designed to provide students with fundamental principles of medical entomology necessary for the application of appropriate measures in the control of vectors and rodents of medical importance.

COURSE AIM

To equip students with necessary knowledge and skills in the control of arthropods and rodents of medical importance.

COURSE OBJECTIVES

1. Outline arthropods and rodents of medical importance
2. Define different terms used in medical entomology
3. Explain life history /life cycle of arthropods
4. Describe vector and rodent borne diseases
5. Explain appropriate interventions used in vector and rodent control
6. 1. Define key concepts in chemical safety.
7. Outline the sources and classification of pesticides and toxic substances
8. Explain key concepts in toxicology
9. Explain the exposure pathways to pesticides and toxic substances
10. Explain the classification of toxic substances according to their sources
11. Explain the classification of pesticides according to use
12. Describe the risks associated with the use of pesticides and toxic substances
13. Recommend appropriate ways of ensuring pesticide and toxic substances safety Enforce pesticides and toxic substance legislation

COURSE LEARNING OUTCOMES

1. Conduct spraying techniques in the control of vectors
2. Distinguish synanthropic rats from mice
3. Identify eggs and larvae from breeding sites
4. Explain modes of transmission for vector and rodent borne diseases
5. Apply control methods to prevent and control epidemics of vector and rodent borne diseases
6. Differentiate various types of arthropods
7. Use various survey methods to catch vectors
8. Identify snails carrying schistosoma parasites
9. Utilize appropriate measures in the control of vectors and rodents
10. Apply concepts of chemical safety in the management of chemicals.
11. Classify public health chemicals
12. Classify toxic substances according to their sources.
13. Explain key concepts in toxicology
14. Classify pesticides according to use
15. Illustrate the labelling requirements for pesticides and toxic substances in Zambia.
16. Monitor the transportation, storage and disposal of pesticides and toxic substances

17. Conduct compliance monitoring of premises that deals in pesticides and toxic Substances
18. Enforce pesticides and toxic substances legislation
19. Interpret International Conventions and Agreements in pesticides and toxic substances Safety
20. Recommend appropriate ways of ensuring pesticide and toxic substances safety
21. Enforce pesticides and toxic substance legislation

COURSE CONTENT

UNIT ONE: MEDICAL ENTOMOLOGY

1.1 Introduction to Medical Entomology

- 1.1.1 Introduction
- 1.1.2 Definition of terms
- 1.1.3 Classification of arthropods

1.2 Insects of medical importance

- 1.2.1 Mosquito
- 1.2.2 House fly
- 1.2.3 Cockroach
- 1.2.5 Black fly
- 1.2.6 Fleas
- 1.2.7 Mites
- 1.2.8 Ticks
- 1.2.9 Lice
- 1.2.10 Bedbugs
- 1.2.11 Tsetse fly
- 1.2.12 Tumbu fly

1.3 Basic anatomy of arthropods

1.4 Life cycles of arthropods of medical importance in Zambia

1.5 Vector control

- 1.5.1 Vector Status (Affinity, Susceptibility, and Longevity);
- 1.5.2 Methods of disease transmission (Mechanical transmission, Biological transmission and Transovarian Transmission);
- 1.5.3 Prevention and control Methods for Vectors (Chemical control, Biological Control, Source reduction, Integrated vector management (IVM), and Person protection)
- 1.5.4 Resistance (Behavior resistance, Vigor resistance, Physiological resistance)

1.6 Malariology

- 1.6.1 Introduction
- 1.6.2 Definition and Background
- 1.6.3 Lifecycle of Malaria parasite in man and mosquito
- 1.6.4 Symptoms and signs of malaria
- 1.6.5 Management of Malaria (Uncomplicated Malaria, Complicated Malaria, and Intermittent Preservative Treatment - I.P.T);
- 1.6.6 Malaria control Interventions (Indoor Residual Spraying – IRS, Insecticide Treated Nets – ITN, Larval Control, and Environmental Management - Modification, and Manipulation)
- 1.6.7 Mosquito control at the Airport
- 1.6.8 Zoning concept (Free Zone, Buffer zone, and Protective zone).

1.7 Human African Trypanosomiasis

- 1.7.1 Types of tsetse flies and their habitats;
- 1.7.2 Tsetse fly and disease; and
- 1.7.3 Prevention and Control measures.

1.8 Fumigation process

- 1.8.1 Definitions
- 1.8.2 Fumigant, fumigator, Grains Silo operator
- 1.8.3 Selection of fumigants
- 1.8.4 Application equipment and Protective equipment;
- 1.8.5 Fumigation by Pest Control operators;
- 1.8.6 Safety and health precautions; and first - aid kit.

1.9 Rodent control

- 1.9.1 Introduction
- 1.9.2 Classification and grouping of rodents
- 1.9.3 Common species of rodents
- 1.9.4 Rodents and diseases (Plague, Salmonellosis, Rabies, and Murine typhus)
- 1.9.5 Rodent surveillance and control in public places (markets, airports, houses, public buildings and silo establishments)
- 1.9.6 Safety precaution in rodenticide usage
- 1.9.7 Groups of rodenticides
- 1.9.8 Organisation of rodent control programme

1.10 Legislation on Medical Entomology and Rodent Control in Zambia

- 1.10.1 Public Health Act Cap 295 sect 34 and 67 (1) and (j);
- 1.10.2 Public Health Act (infections disease) Regulations 34, 57 and 58
- 1.10.3 WHO International Health Regulations (2005) and other International conventions

UNIT TWO: CHEMICAL SAFETY

2.1 Management of Pesticides used in Public Health:

- 2.1.1 Introduction to chemical safety
- 2.1.2 Definition of terms; chemical safety, pesticide, and toxic substance.
- 2.1.3 History of the use of pesticides; the story of DDT, Minamata disease and Bhopal accident.

2.2 Sources and Classification of Pesticides and Other Toxic Substances

- 2.2.1 Sources of toxic substances: mining industries; chemical industries; pharmaceutical industries; waste disposal industries; manufacturing industries and agro industries.
- 2.2.2 Classification of toxic substances according to their sources: industrial chemicals; agro chemicals and pharmaceutical chemicals.
- 2.2.3 Classification of pesticides according to use: insecticides; fungicides; herbicides; plant growth regulators; insect growth regulators; rodenticides; and ovicides.
- 2.2.4 Classification of public health chemicals:
- 2.2.5 Insecticides; organophosphates, carbamates, organochlorines, and pyrethroids.

2.2.6 Rodenticides; warfarin, warfarin derivatives, calciferol, fluoroacetates, and metal phosphides.

2.3 Toxicological effects pesticides

2.3.1 Definition of key concepts in toxicology

2.3.2 Dose-response relationship

- Dose response curve
- Determination of LD50, LC50, NOAEL, NOEL and LOEL

2.3.3 Exposure pathways to pesticides and toxic substances:

- Definition of exposure;
- Routes of exposure to pesticides and toxic substances: inhalation; ingestion; and dermal.
- Types of exposure: acute exposure; and chronic exposure

2.4 Pesticides and Other Toxic Substances Safety

2.4.1 Handling of pesticides and toxic substances

- Safety and management: knowledge; and engineering controls
- Personal protective equipment in accordance with Regulation 51 (2) of the Environmental Management (Licensing) Regulations of 2013.

2.4.2 Labelling of pesticides and toxic substances

- Identification of pesticides: common name or approved name; proprietary name or trade name; active ingredient; formulation; and formulant.
- Labelling of pesticides and toxic substances in accordance with the 11th schedule of the Environmental Management (Licensing) Regulations of 2013
- Pictograms on containers for pesticides in accordance with the 11th schedule of the Environmental Management (Licensing) Regulations of 2013.
- Colour coding classification for pesticides in accordance with the 11th schedule of the Environmental Management (Licensing) Regulations of 2013.
- Importance of Safety Data Sheets for pesticides and toxic substances

2.4.3 Transportation, storage, and disposal options for pesticides and toxic substances

- Transportation of pesticides and toxic substances in accordance with the 10th Schedule of the Environmental Management (Licensing) Regulations
- Storage conditions for pesticides and toxic substances in accordance with the 12th Schedule of the Environmental Management (Licensing) Regulations
- Disposal options for pesticides and toxic substances in accordance with the 13th Schedule of the Environmental Management (Licensing) Regulations

2.5 Pesticide residues in food:

2.5.1 Definition of pesticide residues.

2.5.2 Preventive measures to reduce amounts of pesticide residues

2.5.3 Limitations of preventive measures

2.5.4 Setting maximum residue limits for pesticides in food

2.5.5 Maximum residue limits for pesticides in food for Zambia

2.6 Risks Associated with the Use of Pesticides and Other Toxic Substances

2.6.1 Impacts of pesticides and toxic substances on human health

- Effects of pesticides and toxic substances at cellular level
- Adverse effects: local or systemic; immediate or delayed; reversible or irreversible; additive or antagonistic or synergistic; potentiation or tolerance or resistance and idiosyncratic reaction
- Human health impacts: accumulation in the body; cancer; reproductive toxicity; endocrine toxicity; neurotoxicity; and immunotoxicity
- Factors that affect the toxicity of chemical: chemical structure of the chemical; dose; biological activity; route of entry; age; and health status.

2.6.2 Impact of pesticides and toxic substances on the Environment: aquatic toxicity; ground water contamination; effects on wildlife; effects on microbes; bioaccumulation; and biomagnification.

2.7 Enforcement of Pesticides and Other Toxic Substances Legislation

2.7.1 Licensing of pesticides and toxic substances premises in accordance with provisions of the Environmental Management Act of 2011, and Environmental Management (Licensing) Regulations of 2013

2.7.2 Compliance monitoring of pesticides and toxic substances premises

2.7.3 Enforcement of pesticides and toxic substances legislation

2.7.4 International Conventions and Agreements in pesticides and toxic substances safety

- The Rotterdam Convention
- The Stockholm Convention
- The Basel Convention
- The Bamako Convention.

TEACHING METHODS

1. Lectures
2. Practical
3. Group discussions
4. Demonstrations
5. Field trips
6. Tutorials

NOTIONAL HOURS: 150 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Practical/Lab work: 1 hour per week
3. Field work: 3 hours per week
4. Assessment and self-study: 3 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- | | |
|-------------------|-----|
| 1.1 2 Tests | 20% |
| 1.2 2 Assignments | 10% |
| 1.3 Practical | 10% |

2.0 Final Examinations 60%

2.1 Theory 40%

2.1 Practical 20%

PRESCRIBED READINGS

1. Service, M.W. (2008).**Medical Entomology for Students**. Cambridge: Cambridge University Press
2. Mullen, G and Durden, L (eds.) (2002).**Medical and Veterinary Entomology**. Amsterdam: Academic Press
3. The Malaria Consortium (2007).**Malaria Hand Book for Health Professionals**. Macmillan Publishers Ltd.
4. World Health Organisation (2006). **Pesticides and their Application, for the control of Vectors and Pests of Public Health Importance**, 6thedn, WHO, Geneva

RECOMMENDED READINGS

1. Government of the Republic of Zambia (2011). **Environmental Management (Licensing) Regulations of 2014**. Lusaka: Governmental Stores
2. FAO (2006). **Guidelines on Compliance and Enforcement of a Pesticide Regulatory Programme**. Rome: FAO Publication.
3. World Health Organization (2013). **Environmental Management (Licensing) Regulations of 2013**. Lusaka: Governmental Stores
4. World Health Organization (2006). **Sound Management of Pesticides**. Geneva: WHO Press
5. World Health Organization (2000). **Hazardous Chemicals in Human and Environmental Health**. Geneva: WHO Press.
6. Government of the Republic of Zambia (2011). **Environmental Management Act of 2011**. Lusaka: Governmental Stores

YEAR TWO SEMESTER TWO

Course Codes	Course Titles
PHS 221	Strategic Public Relations and Ethics
PHS 222	Communicable Diseases
PHS 223	Reproductive Health, Mother and Child Health
PHS 224	Health Promotion and Behavioural Change
PHS 225	Waste Management

COURSE TITLE: STRATEGIC PUBLIC RELATIONS AND ETHICS
COURSE CODE: PHS 221

INTRODUCTION

This course provides students with a detailed introduction to public relations, including its historical origins, and its distinctions from advertising. Students will study theories of the public and public relations theory, while learning the many roles of the public relations in Public Health. Through case studies students will examine the legal and ethical concerns of Public Relations while studying the press release, newsletter, and personal appearances

COURSE AIM

The course aims at providing students with the knowledge, skills and attitude in understanding the basic concepts and principles of public relations, professional ethics in public health as well as communications studies

COURSE OBJECTIVES

1. Define the terms in Public Relations
2. Explain the role and functions of Public Relations in Public Health
2. Discuss the nature and challenges of public relations work
3. Explain the importance of effective writing skills as they apply to public relations advertising, and sales for target audiences
4. Elucidate the role and functions of public relations in Public Health
5. Apply the basic elements of planning and research to strategic writing for public relations, advertising, sales, marketing, and business communication
6. Explain historical evolution of public relations and professional/ethical/legal responsibilities
7. Describe the basic process of public relations — research, planning, communication
8. Outline various communications strategies to achieve organizational goals.
9. Explain the concepts of public relations, audience analyses, and persuasion

COURSE LEARNING OUTCOMES

1. Use practical guidelines for utilizing written, spoken, and visual techniques to reach the selected audience.
2. Employ writing to appeal to audiences through a variety of mediums, including speech, print, broadcasting, and advertising
3. Apply principles of persuasion and conflict management to public relations campaign design
4. Adapt strategies and tactics of public relations campaigns to fit diverse audiences and clients
5. Identify the ethical and legal dimensions of working in the public relations field

COURSE CONTENT

UNIT ONE: STRATEGIC PUBLIC RELATIONS AND ETHICS

1.0 PURPOSE AND COURSE OVERVIEW

- 1.1 Defining Public Relations (PR) and the Public
- 1.2 Misconceptions about Public Relations
- 1.3 Theories of the public and public relations theory
- 1.4 The history of Public Relations
- 1.5 Functions of Public Relations
- 1.6 Public Relations in the Health Care Industry
 - 1.6.1 Where does Public Relations fit in Public Health?
 - 1.6.2 Roles of the public relations practitioner in Public Health
 - 1.6.3 Value of public relations in influencing decision-making
 - 1.6.3 Role of PR in influencing Public opinion

1. INTRODUCTION TO PUBLIC RELATIONS PLANNING IN PUBLIC HEALTH

- 1.1 Planning, theory and models
- 1.2 Communication process: objectives, messages, publics and communication channels
- 1.3 Identification of communication assets (liabilities via a communication audit)
- 1.4 Communication and The Art of persuasion
- 1.5 Application of Weik's model of organising health care and health promotion
- 1.6 Public Relations: Strategies and Tactics
- 1.7 Personal Skills and Development
- 1.8 Implementing effective improvement strategies in Public health
- 1.9 Measurement and output evaluation of Public Relations' effectiveness in Public Health

2. IMPLICATIONS OF SOCIAL MEDIA FOR PUBLIC RELATIONS IN PRACTICE:

- 3.1 Particular challenges associated with digital/social media
- 1.2 Outline of main digital media and their implications/use for public relations
- 3.3 Social media do's and don'ts

3. WRITING FOR TRADITIONAL MEDIA

- 3.1 Writing features (including comment pieces) and press releases
- 3.2 Writing blogs, tweets, FAQs and web content
- 4.3 Podcasts, multi-media releases, viral videos and photography
- 4.12 New technologies in public relations

UNIT: ETHICS AND PROFESSION

1.0 Introduction

1.1 What a Profession?

- 1.1.1 Characteristics of a Profession
- 1.1.2 What it means to be a Professional

2.0 Ethics

- 2.1 Definition of ethics
- 2.2 Code of ethics for Public Health Practitioners
- 2.3 Core ethical values and standards for Public Health Practitioners

2.4 Prescribed ethical and professional rules (Refer to HPCZ)

3.0 How to resolve ethical dilemmas

- 3.1 Formulating the problem
- 3.2 Gathering information
- 3.3 Consider options
- 3.4 Make a moral assessment
- 3.5 Using framework of ethics in making difficult choices
 - 3.5.1 Evidence of effectiveness
 - 3.5.2 Equity
 - 3.5.3 Patient choice

4.0 Main responsibilities of Public Health Practitioners

7 Principles of ethical debate and behaviour

- 7.1 Autonomy
- 7.2 Beneficence
- 7.3 Non-maleficence
- 7.4 Justice

TEACHING METHODS

- 1. Lectures
- 2. Tutorials
- 2. Demonstrations
- 3. Group discussions

NOTIONAL HOURS: 80 HOURS

- 1. Lectures: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Seminar: 1 hour per week
- 4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

- 1.0 Continuous assessment: 40%**
 - 1.1 2 Tests: 10%
 - 1.2 2 Assignments: 10%
 - 1.3 Field Practical 20
- 2.0 Final Examinations: 60%**
 - 2.1 Theory: 60%

PRESCRIBED READINGS

- 1. Wilcox and Cameron (2012). **Public Relations: Strategies and Tactics**. 10th Edition. Boston: Pearson

RECOMMENDED READINGS

- 2. Traynowicz-Hetherington, L., Ekachai, D., Parkinson, M. (2001). **Public Relations in the Health Care Industry**: Sage Publication

COURSE TITLE: COMMUNICABLE DISEASES

COURSE CODE: PHS 222

INTRODUCTION

The course is designed to prepare students with appropriate knowledge, skills and attitudes to enable them identify and prevent and control various diseases.

COURSE AIM:

Students should be able to apply knowledge and skills of communicable and diseases in a professional attitude thus developing managerial skills in prevention and control of communicable diseases and other infectious diseases

COURSE OBJECTIVES:

1. Describe key concepts in communicable diseases
2. Describe signs, symptoms and prevention of communicable diseases
3. Describe neglected tropical diseases of public health importance in Zambia
4. Explain the modes of communication of various infectious diseases.
5. Explain the interaction between host, agent and environmental factors in the aetiology of disease
6. Outline the process of identification, planning and implementation of disease prevention and control
7. Describe types of snails and diseases associated with them
9. Explain the epidemiology of non-communicable diseases
10. Describe diabetes in terms of prevalence, causes, general symptoms and management

COURSE LEARNING OUTCOMES:

1. Identify common signs and symptoms of communicable diseases
2. Formulate a plan for disease control
3. Formulate strategies in the management of communicable diseases,
4. Formulate strategies in the prevention of communicable diseases
Formulate strategies in the control of communicable diseases
5. Carry out snail survey
6. Establish the preventive measures in relation to the disease
7. Establish control measures in relation to the diseases
11. Identify neglected tropical diseases of public health importance in Zambia
12. Analyse the interaction between host, agent and environmental factors in the etiology of disease
13. Apply strategies for implementation of disease prevention and control
14. Carry out snails survey to identify the type responsible for disease transmission
15. Apply legislation related to the control of communicable diseases
11. Demonstrate understanding of diseases of lifestyle

COURSE CONTENT

UNIT ONE: COMMUNICABLE DISEASES

1.0 Introduction to Communicable Diseases

- 1.1 Definition of terms used in communicable diseases
- 1.2 Dynamics of disease transmission
- 1.3 WHO International Health Regulations, 2005.
- 1.4 Listing diseases, which are notifiable in Zambia as per Public Health Act CAP 295 and other policy documents

2.0 Common communicable diseases in Zambia

- 2.1 Describe the epidemiology, aetiology, basic manifestations and course, public health impact, prevention, detection and available treatment of the following:
 - 2.1.1 Communicable diseases involving faecal contamination of water, food and other vehicles of transmission: Poliomyelitis, Dysentery, Amoebiasis, Cholera, Typhoid, Paratyphoid, Giardia intestinalis, Salmonellosis, Ascariasis, Enterobiasis and Ancylostomiasis
 - 2.1.2 Communicable diseases caused by ingestion or contact with animals or their products: Rabies, Tetanus Brucellosis, Ebola, Taeniasis, Anthrax, Bovine Spongiform Encephalopathy (BSE) and Weil Disease
 - 2.1.3 Air borne or droplet communicable diseases: Tuberculosis, Whooping cough, Diphtheria, Measles, Mumps, Meningitis, Chicken pox, Small pox , SARS and other virus infections
 - 2.1.4 Communicable diseases involving invertebrate vectors as hosts: Malaria, Bilharzia and Sleeping sickness, Tick fever and other arthropod borne diseases
 - 2.1.5 Sexually transmitted infections: Gonorrhoea, Syphilis, Chancroid, Trichomonas vaginalis, Lymphogranulomavenereum and Acquired Immune Deficiency Syndrome
 - 2.1.6 Contagious communicable diseases: Ringworm, Scabies, Leprosy, Trachoma and Conjunctivitis

3.0 Disease domain examples:

3.1 HIV/AIDS

- 3.1.1 Epidemiology of HIV/AIDS: History of HIV/AIDS
 - 3.1.1.1 Basic facts about HIV/AIDS: Behaviour and presentation.
 - 3.1.1.2 HIV/AIDS in adults and children: Major signs and symptoms, and mitigating factors.
- 3.1.2 The impact of HIV/AIDS: Social and economic impact on society (workplace and at home).
- 3.1.3 Sex and sexuality: Cultural factors, which contribute to HIV/AIDS transmission.
- 3.1.4 Voluntary counselling and testing: Testing for insurance, recruitment, employment, epidemiological surveillance and voluntary.
- 3.1.5 Rights and responsibilities for individuals, employers and government.
- 3.1.6 Prevention and control.

3.2 Tuberculosis (TB)

- 3.2.1 Epidemiology of TB: History of TB
 - 3.2.1.1 Basic facts about TB: Behaviour and presentation.
 - 3.2.1.2 TB in adults, children and the vulnerable groups: Major signs and symptoms and mitigating factors.

- 3.3 The impact of TB: Social and economic impact on society (workplace and at home).
- 3.4 Factors which contribute to TB transmission.
- 3.5 TB testing (Diagnosis).
- 3.6 Prevention and control.

4.0 Control of communicable diseases

- 4.1 Control strategies
 - 4.1.1 The agent (disinfection, treatment)
 - 4.1.2 The transmission route
 - 4.1.3 The host & community (treatment, isolation, quarantine, immunization)
 - 4.1.4 The environment
 - 4.1.4.1 Cleaning and disinfection
 - 4.1.4.2 Types of disinfectants: Gaseous, liquid, physical, natural and heat.
 - 4.1.1.3 Methods used in disinfecting premises, different materials and equipment.

TEACHING METHODS

- 1. Lectures
- 2. Tutorials
- 2. Group discussions
- 3. Individual student presentations

NOTIONAL HOURS: 120 HOURS

- 1. Lectures: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Seminar: 3 hours per week
- 4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

- 1.0 Continuous assessment 40%**
 - 1.1 2 Tests 30%
 - 1.2 2 Assignments 10%
- 2.0 Final Examinations 60%**
 - 2.1 Theory 60%

PRESCRIBED READINGS

1. Park, K. (2011). **Prevention and Social Medicine**. New Delhi: Prem Nagar,
2. Hawker, J., Begg, N., Blair, I., Reintjes, R., and Weinberg, J. (2008). **Communicable Disease Control Handbook**. Wiley-Blackwell
3. Webber, R. (2012) **Communicable Diseases: A Global Perspective**. 4th Edition. London: Cabi.

RECOMMENDED READINGS

1. Wood, C. (2008). **Community Health**. Nairobi: The African Medical and Research Foundation
2. Scheld, W.M., Armstrong, D. and Hughes, J.M. (1998). **Emerging Infectious**. Washington, DC: ASM Press,.. ISBN 1-55581-123-3.
ISBN 0-19-511139-7.

COURSE TITLE: REPRODUCTIVE HEALTH, MOTHER AND CHILD HEALTH
COURSE CODE: PHS 223

INTRODUCTION:

The course is designed to contribute to the improvement of maternal and reproductive health in communities by involving men in health care decisions. To strengthen the institutional analysis and dissemination of key actors (both men and women) involved in reproductive health to meet reproductive, maternal and child health needs.

COURSE AIM:

The provides students with knowledge and skills aimed at improving the well-being of mothers, infants, and children and ultimately their well-being determines the health of the next generation and can help predict future public health challenges for families, communities, and the health care system.

COURSE OBJECTIVES:

1. Define terms and concepts used in reproductive and sexual health
2. Describe cultural and gender factors in reproductive and sexual health
3. Describe the historical background and contemporary trends of maternal and child health
4. Explain the pertinent issues related to all aspects of women's and children's health
5. Describe the anatomy and physiology from preconception through birth management
6. Discuss the factors related to newborn care including acquired problems, nutrition, and feeding options
7. Describe maternal and child health care

COURSE LEARNING OUTCOMES

1. Critically analyze issues related to maternal and child health care
2. Demonstrate understanding of child growth monitoring activities and their assessment
3. Identify the common causes of morbidity and mortality among children
4. Analyze cultural and gender factors in reproductive and sexual health
5. Correctly advise men, women and young people on services to solve reproductive and sexual health problems
6. Identify the most common complications of pregnancy including the causes of low birth weight and premature infants

COURSE CONTENT

UNIT ONE: REPRODUCTIVE HEALTH

1.0 Introduction

- 1.1 Concepts and definition of terms
- 1.2 The Cairo Declaration of 1994
- 1.3 Reproductive health national policy and goals
- 1.4 Theory and principles of reproductive health
- 1.5 Programme implementation and reproductive health status in Zambia
- 1.6 Gender and reproductive health:
- 1.7 Cultural perspectives of gender; and Gender based violence

2.0 Reproductive health Components

- 2.1 Safe motherhood models of care
- 2.2 Routine antenatal activities
- 2.3 Routine postnatal care activities
- 2.4 Danger signs in pregnancy

3.0 Sexual health

- 3.1 Definition and concepts
- 3.2 Global perspectives of sexual health
- 3.3 Determinants of sexual health
- 3.4 Sexually transmitted infections

4.0 Infertility

5.0 Cancers and their screening:

- 5.1 Prostate cancer
- 5.2 Cervical cancer
- 5.3 Breast cancer

UNIT TWO: MATERNAL AND CHILD HEALTH

1.0 Overview of maternal, male and child health (MCH)

- 1.1 History of MCH
- 1.2 Contemporary MCH issues and trends
- 1.3 Community care
- 1.4 The family and culture
- 1.5 The male Reproductive Health

2.0 Women's health issues:

- 2.1 Health assessment

- 2.2 Violence against Women
- 2.3 Reproductive system concerns
- 2.4 Sexually transmitted and other infections
- 2.5 Contraception and abortion
- 2.6 Mental health disorders and substance abuse.

3.0 Preconception through post-partum issues:

- 3.1 Anatomy and Physiology of pregnancy
- 3.2 Conception and foetal development
- 3.3 Maternal and foetal nutrition
- 3.4 Child birth and perinatal education
- 3.5 Labour and birth processes.

4.0 Complications in pregnancy:

- 4.1 Assessment of risk factors
- 4.2 Hypertensive disorders in pregnancy
- 4.3 Ante partal hemorrhagic disorders
- 4.4 Endocrine and metabolic disorders
- 4.5 Labour and birth complications.

5.0 New born care:

- 5.1 Care of the new born
- 5.2 Acquired problems of the new born
- 5.3 New born nutrition and feeding
- 5.4 High risk new borns

6.0 Child health:

- 6.1 Overview
- 6.2 Early growth and development
- 6.3 Well child care
- 6.4 Children with special needs
- 6.5 Childhood diseases
- 6.6 Vaccinations

7.0 Maternal nutrition:

- 7.1 Nutrition and infection
- 7.2 Micronutrient deficiencies
- 7.3 Child nutrition and child feeding
- 7.4 Malnutrition (kwashiorkor, marasmus, obesity)
- 7.5 Demonstrations (cookery demonstration, infant feeding)
- 7.7 Nutrition surveillance.

TEACHING METHODS

1. Lectures
2. Tutorials
4. Group discussions
5. Individual student presentations

NOTIONAL HOURS: 120 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Practical/Lab work: 1 hour per week
4. Field work: 2 hours per week
5. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment	40%
1.1 2 Tests	20%
1.2 2 Assignments	10%
1.3 Practical	10%
2.0 Final Examinations	60%
2.1 Theory	40%
2.2 Practical	20%

PRESCRIBED READINGS

1. Ministry of Health (2008) **Reproductive Health Policy**– Ministry of Health

RECOMMENDED READINGS

2. Government of the Republic of Zambia (2000). **Gender Policy**. Lusaka.
3. Ministry of Health (2006). **Family Planning Guidelines and Protocol**, Lusaka.

**COURSE TITLE: HEALTH PROMOTION AND BEHAVIOURAL CHANGE
COMMUNICATION**

COURSE CODE: PHS 224

CREDITS: 4 CREDITS

INTRODUCTION

The course provides a broad ecological perspective on health behaviour and health promotion, including understanding the scope and purpose of health behaviour theories, and identifying what is most relevant from those theories that may be applied in practice, thus enabling people to increase control over and to improve their health” (Ottawa Charter, First International Conference of Health Promotion, 1986).

COURSE AIM

The course aims to equip students with knowledge, skills and attitudes in the development, implementation, and evaluating programs for helping individuals and communities adopt and maintain healthy lifestyles, particularly those useful for helping individuals and communities change their behaviours and improve their environments.

COURSE OBJECTIVES

1. Explain the concept of health
2. Elucidate the broader determinants of health
3. Define the key terms in health promotion
4. Explain the basic concepts, milestones, and approaches to health promotion
4. Explain health promotion from public health perspectives
5. Discuss the process of project planning and management.
6. Describe group dynamic skills in working with the community
7. Describe health promotion activities.
1. Describe the theories and models in health promotion as well as their limitations.
2. Explain a range of societal, social, group-oriented, and individual strategies and actions for health promotion

COURSE LEARNING OUTCOMES:

10. Differentiate between Health Promotion And Health Education
11. Apply principles of health promotion in the management of community programmes and projects
12. Demonstrate ability to conduct health education to the community
13. Conduct community diagnosis
14. Network with stakeholders in promoting health.
15. Apply ethical issues in carrying out Health promotion in carrying out community activities
16. Use health education principles in communicating with the community.
17. Utilize strategies of health promotion in carrying out community health activities
18. Write project proposals to enhance health promotion activities.
19. Identify and address gender health related problems
20. Carry out health promotion activities with a gender perspective.
21. Plan health promotion programmes in collaboration with stakeholders.
12. Apply group dynamic skills in working with the community.

COURSE CONTENT

1.0 Introduction

- 1.1 The concept of health
- 1.2 Dimensions of health
- 1.3 Holistic approach to health
- 1.4 Social determinants of health
- 1.5 Lay and professional concepts of health
- 1.6 Key/Common Terminologies (Health Equity, Life style, Social class)

2.0 Description of Health Promotion

- 2.1 The concept 'Health promotion'
- 2.2 Core values of Health Promotion
- 2.3 Principles of Health Promotion
- 2.3 Strategies of Health Promotion
- 2.4 Principles (Values) of a Health Promoter
- 2.5 Health promotion in practice (Local examples/activities)

3.0 The development of Health Promotion (Historical Perspective)

- 3.1 Background of the Lalonde Report
- 1.3 The Bangkok charter
- 1.4 The Ottawa charter
- 1.5 Health field concept of Marc Lalonde
- 1.6 Alma Ata and the primary health care movement
- 1.7 Relevance and application of global health promotion conferences to Zambia.

4.0 Approaches to health promotion

- 4.1 Disease prevention approach
- 4.1 The educational approach
- 4.3 The ecological approach
- 4.4 The empowerment approach

5.0 Health Education – Its theory and practice

- 5.1 Definition of health education
- 5.2 Theories applied in health education practice
- 5.3 Health promotion vs Health education
 - 5.3.1 Relationship between health promotion and health education
 - 5.2.2 Characteristics (features) of health promotion
 - 5.2.3 Characteristics (features) of health education
- 5.3 Participatory techniques in health education
- 5.4 Concepts of teaching and learning
- 5.5 Domains of learning
- 5.6 Learning health behaviour outcomes
- 5.7 Learning theories- John Dewey and Paulo Freire
- 5.8 Lesson plan in teaching
- 5.9 Principles of teaching
- 5.10 How adults learn

6.0 The role of NGOs in promoting health

- 6.1 Definition of the term 'NGO'
- 6.2 The significance of NGOs in promoting health
- 6.3 Background of NGOs/ Act governing NGOs in Zambia
- 6.4 Terms for non-profit organisations
- 6.5 The concept philanthropy- the spirit of giving
- 6.6 Classifications of NGOs
- 6.7 Health Activities of NGOs in Zambia

7.0 Health and Poverty

- 7.1 Definition of 'Poverty'
- 7.2 Types of poverty
- 7.3 Measuring poverty
- 7.4 How poverty causes people's restriction
- 7.5 How poverty affects women
- 7.6 Available evidence on poverty & health (How poverty affect the health of an individual)
- 7.7 Physical, Psychological and behavioral effects of poverty
- 7.8 Interventions to combat poverty

8.0 Health and Projects

- 8.1 Definition of the term 'Project'
- 8.2 Characteristic features of a project (Project fundamentals)
- 8.3 Project triangle
- 8.4 The significance of projects in health
- 8.5 Project life cycle
- 8.6 The role of the project manager
- 8.7 The Qualities of the project manager
- 8.8 Project proposal writing
- 8.9 The role of the sponsor /donor in the project

9.0 Gender and Health

- 9.1 Definition of the concept 'Gender'
- 9.2 Gender and Sex
- 9.3 Gender disparities in relation to health
- 9.4 Gender needs, Concerns and Issues
- 9.5 Interventions to eradicate gender inequalities

10.0 Behaviour Change

- 10.1 Definition of the term 'Behaviour'
- 10.2 Healthy Behaviours Vs Health Risk Behaviours
- 10.3 Healthier Lifestyle
- 10.4 Behavioural change theories and their application to health promotion
- 10.5 Positive behaviour change in health

11.0 Working in a Team

- 11.1 Definition of the term 'Team'
- 11.2 Characteristics of a team
- 11.3 Belbin's team roles
- 11.4 An effective health team
- 11.5 Significance of leadership in a team

12.0 Networking in Health Promotion

- 12.1 Definition of the term Networking
- 12.2 Types of networking
- 12.3 Health importance of networking

13.0 Contribution of Education to Health Promotion

- 13.1 Definition of the concept Education
- 13.2 Types of Education
- 13.3 Aims of Education
- 13.4 Benefits of education to the girl child
- 13.5 Naturalism versus Environmentalism
- 13.6 Effective education

14.0 Planning Interventions in Health Promotion

- 14.1 Definition of Planning
- 14.2 Terminologies
- 14.3 Reasons for planning
- 14.4 Stakeholders in planning
- 14.5 Types of Planning
- 14.6 Planning models

15.0 Strategic Management in Health Promotion

- 15.1 Definition of a strategy
- 15.2 Types of strategies
- 15.3 Being a good strategist
- 15.4 Process of developing a strategy
- 15.5 SWOT Analysis
- 15.6 Importance of strategic management in health promotion

16.0 Evidence based practice in Health Promotion

- 16.1 Definition of Evidence based practice
- 16.2 What elements contribute to Evidence based practice
- 16.3 What counts as evidence?
- 16.4 Types of Evidence
- 16.5 How Evidence based practice contribute to health promotion development

17.0 Research for health promotion practice

- 17.1 Nature of research
- 17.2 Importance of research health promoters
- 17.3 What is research?
 - 17.3.1 Uses of epidemiology
 - 17.3.2 Methods used
- 17.4 Positivist & interpretive paradigms
- 17.5 The differences between quantitative & qualitative research
- 17.6 Research for health promotion
- 17.7 The practitioner-researcher

18.0 Ethical Issues in Health Promotion

- 18.1 Philosophy of health promotion
- 18.2 Duties in health promotion
- 18.3 Ethical principles
- 18.4 Significance of ethics in health promotion

19.0 Emerging issues in Health Promotion

- 19.1 Health promotion & IT
- 19.2 Social marketing
- 19.3 Gender based violence
- 19.4 Men's health
- 19.5 Human Trafficking
- 19.6 Happiness index
- 19.7 e.health

20.0 The Future of Health Promotion

- 20.1 Based on theoretical and practical experience
- 20.2 Where does health promotion stand?
- 20.3 If the future is bright, what is the justification?
- 20.4 Areas to think about:
 - 20.4.1 The concept 'Health'
 - 20.4.2 The meaning of 'Promotion'
 - 20.4.2 Aim of health promotion
 - 20.4.3 Health Equity
 - 20.4.4 Information technology (IT)
 - 20.4.5 Research
 - 20.4.6 Sustainable development goals (SDGs)

TEACHING METHODS

1. Lectures
2. Tutorials
3. Field work
4. Group discussions
5. Presentations

NOTIONAL HOURS: 100 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Seminar: 1 hour per week
4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- 1.1 2 Tests 30%
- 1.2 2 Assignments 10%

2.0 Final Examinations 60%

- 2.1 Theory 60%

PRESCRIBED READINGS

1. Edelman, C.L., Mandle, C.L. & Kudzma, E.C. (2013). **Health Promotion throughout the lifespan**. Philadelphia: Elsevier.
2. Laverack, G. (2004). **Health Promotion Practice (Power and Empowerment)**. London, SAGE Publication
3. Naidoo, J. & Wills, J. (2009) **Health Promotion Foundations for Practice**. London, Baillier Tindall.

RECOMMENDED READINGS

1. Navarro, V. (1999). "Health and Equity in the World in the Era of Globalisation." *International Journal of Health Services* Vol. 29 (2): 215-226.
2. Wamala, S. P. and J. Lynch, Eds. (2002). **Gender and Social Inequalities in Health**.
3. WHO-Europe (2002). **Investment for health: a discussion of the role of economic and social determinants**. Geneva: WHO Publications
4. Seedhouse, D. (1997). **Health Promotion, Philosophy, Prejudice and Practice**. Chichester: Willy.
5. Hubley, J. (2008). **Communicating Health**. Oxford: Macmillan Publisher.

COURSE TITLE: WASTE MANAGEMENT

COURSE CODE: PHS 225

INTRODUCTION

The course forms the basis for equipping students with waste management theories, concepts and practices. It also equips the students with knowledge, skills and attitudes to enable them to conduct the hazardous and electronic waste management.

The course is designed to expose students to the management of health-care waste and human remains. The course gives a comprehensive understanding and application of suitable ways of handling these types of wastes including their legislative, regulatory and policy aspects.

COURSE AIM

To enable students acquire knowledge and skills in solid waste and health care waste management including human remains management.

COURSE OBJECTIVES

1. Describe key concepts in solid waste management
2. Explain sources, types and composition of solid wastes
3. Describe various methods used in the collection of waste from domestic houses
4. Elucidate the principles of solid waste management
5. Describe methods of transportation and disposal of solid waste
6. Describe the storage and disposal of hazardous waste
7. Describe the electronic waste
8. Explain key concepts in health-care waste management
9. Describe health-care waste
10. Elucidate impacts of health-care waste on human health and the environment
11. Outline legal and institutional framework for health-care waste management
12. Describe methods of managing health care waste
13. Explain key concepts in human remains management
14. Describe human remains
15. Describe various methods of human remains management
16. Outline legal and institutional framework for human remains management

COURSE LEARNING OUTCOMES

1. State legal and institutional framework for solid waste management in Zambia
2. Enforce solid waste management legislation.
3. Identify international Conventions and treaties on solid waste management
4. Describe solid waste management guiding principles
5. Illustrate integrated solid waste management
6. Monitor types and sources of solid waste being generated in a town.
7. Characterise solid wastes.
8. Identify functional elements of a solid waste management.
9. Evaluate solid waste handling and separation, storage and processing at the source
10. Enumerate various methods of solid waste collection

11. Recommend solid waste segregation, processing, transformation and recovery methods
12. Establish solid waste transfer and transport system for a town
13. Set up a final disposal method of solid wastes
14. Enforce legislation on health-care waste management
15. Establish health care waste management system through statutory inspections for various types of health-care waste facilities
16. Manage treatment and disposal of health-care waste
17. Establish occupational health system in a health-care facility
18. Advocate for the implementation of infection prevention and control measures in health-care institutions
19. Analyse impacts of health-care waste on human health and the environment
20. Monitor the management of health-care waste management plans
21. Evaluate the management of health-care waste management plans

COURSE CONTENT

UNIT ONE: SOLID WASTE MANAGEMENT

1.0 Introduction

- 1.1 Definition of key concepts in solid waste management; solid waste and solid waste management.
- 1.2 Effects of improperly disposed of solid wastes on human health and the environment
- 1.3 Legal and institutional framework for solid waste management in Zambia

2.0 International Conventions and treaties on solid waste management:

- 2.1 Basel Convention
- 2.2 Bamako Convention
 - 4.2 Stockholm Convention
- 2.4 Agenda 21

3.0 Solid waste management guiding principles:

- 3.1 The “polluter pays” principle
- 3.2 The “precautionary” principle
- 3.3 The “duty of care” principle
- 3.4 The “principle of cooperation”
- 3.5 The “proximity” principle
- 3.6 The cradle-to-grave principle
- 1.8 The integrated life cycle principle

4.0 Integrated solid waste management:

- 4.1 Source reduction
- 4.2 Recycling
- 4.3 Waste transformation
- 4.4 Landfilling
- 4.5 Sources: types and composition of solid wastes
- 4.6 Moisture content and material balance analysis; application of an EMS using ISO package

5.0 Functional elements of a solid waste management system:

- 5.1 Solid waste quantities
- 5.2 Solid waste generation and collection rates
- 5.3 Factors affecting solid waste generation rates
- 5.4 Solid waste characterization/analysis
- 5.5 Solid waste handling and separation, storage and processing at the source

6.0 Solid waste collection:

- 6.1 Curb-side collection
- 6.2 House-to-house collection
- 6.3 Hauled container system
- 6.4 Stationary container system
- 6.5 Factors affecting collection schedule

7.0 Management of solid waste

- 7.1 Solid waste segregation, processing, transformation and recovery
- 7.2 Solid waste transfer and transport:
- 7.3 Final disposal of solid wastes
- 7.4 Refuse pits
- 7.5 Open dumping
- 7.6 Compositing
- 7.7 Incineration (waste to energy)
- 7.8 Landfill method of solid waste disposal
 - 7.8.1 Landfill classification types and methods;
 - 7.8.2 Landfill siting consideration;
 - 7.8.3 Composition and characteristics of landfill gases
 - 7.8.4 Generation, movement and control of landfill gases
 - 7.8.5 Composition, formation, movement and control of leachate in landfills
 - 7.8.6 Landfill operations
 - 7.8.7 Landfill closure and post closure care.

8.0 Disposal of the Dead

- 8.1 Introduction
- 8.2 Legal and social considerations
- 8.3 Mortuary and funeral parlour siting, layout and design
- 8.4 Autopsies (medical and legal)
- 8.5 Cremation and incineration
- 8.6 Siting of burial grounds
- 8.7 Guidelines related to export, import exhumation and disposal of infectious bodies

UNIT TWO: HEALTH CARE WASTE MANAGEMENT

1.0 Definition and characterization of health-care waste:

- 1.1 General definition of healthcare waste
- 1.2 Categories of healthcare waste
 - 1.2.1 Hazardous health-care waste: sharps waste; infectious waste; pathological waste; pharmaceutical waste; cytotoxic waste; chemical waste; and radioactive waste.
 - 1.2.2 Non-hazardous health-care waste

2.0 Sources of health-care waste

- 2.1 Major sources of health-care waste
- 2.2 Minor sources of health-care waste

3.0 Risks associated with health-care waste

- 3.1 Overview of hazards
- 3.2 Public sensitivity
- 3.3 Public health impact

4.0 Legislative, regulatory and policy aspects of health-care waste

4.1 Guiding principles:

- 4.1.1 The “polluter pays” principle

- 4.1.2 The “precautionary” principle
- 4.1.3 The “duty of care” principle
- 4.1.4 The “proximity” principle
- 4.1.5 The “prior informed consent principle”

4.2 International agreements and conventions on health-care waste management

- 4.2.1 The Basel Convention
 - 4.2.2 The Bamako Convention
 - 4.2.3 The Stockholm Convention
- 4.3 Legal framework for health-care waste management in Zambia
- 4.4 Institutional framework for health-care waste management in Zambia

5.0 Health-care waste-management planning

- 5.1 The need for health-care waste management planning
- 5.2 Development of health-care waste-management plan for a health-care facility
- 5.3 Implementation of the health-care waste-management plan

6.0 Generation of health-care waste

6.1 Health-care waste minimization, reuse and recycling

- 6.1.1 Health-care waste minimization
- 6.1.2 Safe reuse of health-care waste
- 6.1.3 Recycling of health-care waste

7.0 Segregation, storage and transport of health-care waste

- 7.1 Segregation systems of health-care waste
 - 7.1.1 Waste segregation
 - 7.1.2 Packaging;
 - 7.1.3 Colour coding
 - 7.1.4 Labeling.
 - 7.1.5 Collection within the health-care facility
 - 7.1.6 Onsite transport of health-care waste
 - 7.1.7 Central storage inside health-care facilities
 - 7.1.8 Offsite transport of health-care waste

8.0 Treatment and disposal options for health-care waste

- 8.1 Non incineration treatment options
 - 8.1.1 Steam treatment technologies e.g. autoclaves;
 - 8.1.2 Microwave treatment technologies
 - 8.1.3 Dry-heat treatment technologies
 - 8.1.4 Chemical treatment technologies
 - 8.1.5 Encapsulation and inertization
 - 8.1.6 Land disposal.
- 8.2 Chamber starved-air incinerators
- 8.3 Multiple chamber incinerators
- 8.4 Rotary kilns
- 8.5 Environmental control of incinerators
- 8.6 Applications of treatment and disposal methods to specific health-care waste categories

9.0 Collection and disposal of health-care wastewater

10.0 Health and safety practices for health-care waste workers

11.0 Hospital infection prevention and control

TEACHING METHODS

1. Lectures
2. Field visits
3. Group discussions
4. Demonstrations
5. Presentations
6. Case studies

NOTIONAL HOURS: 150 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
4. Field work: 3 hours per week
5. Assessment and self-study: 3 hours per week

ASSESSMENT METHODS

- | | |
|---------------------------------|------------|
| 1. Continuous assessment | 40% |
| 1.1 2 Tests | 30% |
| 1.2 2 Assignments | 10% |
| 2. Final Examinations | 60% |
| 2.1 Theory | 60% |

PRESCRIBED READINGS

8. Environmental Council of Zambia (2007). **Technical Guidelines on Sound Management of Health-care Wastes**. Lusaka: ECZ Publication.
9. World Health Organization (2014). **Safe management of wastes from health-care activities**. 2nd Edition. Geneva: WHO press.
10. World Health Organization (2014). **How to conduct safe and dignified burial of a patient who has died from suspected or confirmed Ebola virus disease**. London: World Health Organization.
4. Tchobanoglous, G., and Kreith, F. (2002). **Handbook of Solid Waste Management**. New York: McGraw-Hill Companies.
5. Tchobanoglous, G., Theisen, H., Vigil, A.S. (2004). **Integrated waste management: engineering principles and management issues**. New York: McGraw-Hill.

RECOMMENDED READINGS

1. World Health Organization (2005). **Management of Solid Health-Care Waste at Primary Health-Care Centres**. Geneva: WHO press.
1. Ministry of Health (2015.) **National Health-Care Waste Management Plan 2015 – 2019**. Lusaka: MoH Publication
2. **International Committee of the Red Cross (2011). Medical Waste Management**. Geneva: International Committee of the Red Cross.

YEAR THREE SEMESTER ONE

Course Codes	Course Titles
PHS 311	Integrated Disease Surveillance and Port Health
PHS 312	Applied Environmental Health and Pollution
PHS 313	Community Nutrition and Well-being
PHS 314	Non-Communicable Diseases
PHS 315	Research Methodology and Biostatistics
PHS 316	Industrial Training I

COURSE TITLE: INTEGRATED DISEASE SURVEILLANCE AND PORT HEALTH

COURSE CODE: PHS 311

INTRODUCTION

The course is designed to provide epidemiological information by which the spread of disease is monitored in order to establish patterns of progression. A key part of modern disease surveillance is the practice of disease case reporting, the skill that students shall be exposed to during training which will later be applied not only in communities but also at ports (harbours), border crossings and airports. The main role of disease surveillance is to predict, observe, and minimize the harm caused by outbreak, epidemic, and pandemic situations, as well as increase knowledge about which factors contribute to such circumstances.

COURSE AIM

The course is aimed at providing knowledge, skills and attitude to enable students conduct disease surveillance from which they will get epidemiological data that will help them manage outbreaks of diseases and plan for future scenarios through formation of Epidemic and Pandemic Alert and Response (EPR) teams mandated to detect, verify rapidly and respond appropriately to epidemic-prone and emerging disease threats.

The course is further aimed at providing students with necessary public health capacities at ports, airports and ground crossings to limit the spread of public health risks, while at the same time minimizing any unnecessary interference with travel and trade in line with IHR commitments

COURSE OBJECTIVES

1. Explain the process of integrated disease surveillance and response
2. Describe types of epidemics
3. Outline organisational framework during an epidemic
4. Describe types of disasters
5. Outline organisational framework for disaster management
6. Describe the stages of disaster management
7. Explain the purpose and scope of IHR related to Port Health
8. Outline the role of Port Health in combating notifiable diseases at international level

COURSE LEARNING OUTCOMES

1. Identify cases and events of public Health importance
2. Report suspected cases or conditions or events of public Health importance
3. Analyze and interpret data on priority diseases and events
4. Investigate and confirm suspected cases, outbreaks or events
5. Monitor Integrated Disease Surveillance and Response implementation.
6. Monitor and evaluate Integrated Disease Surveillance and Response implementation

COURSE CONTENT

1. Integrated Disease Surveillance and Response

- 1.1 Definition of key concepts (disease surveillance, and integrated disease surveillance and response)
- 1.2 Objectives of integrated disease surveillance and response
- 1.3 Integrated Disease Surveillance and Response and International Health Regulations
- 1.4 Priority diseases for integrated disease surveillance and response
- 1.5 Definition and types of epidemics: progressive epidemic; endemicity; and pandemic
- 1.6 Common sources of epidemics: point common-source; continuous common-source; and intermittent common-source
- 1.1 Epidemic preparedness: early warning; early detection; notification; verification; early response; post epidemic assessment; and preparedness plan of action.
- 1.8 Identification of cases of priority diseases, conditions, and events
- 1.9 Reporting priority diseases, conditions and events
- 1.10 Analysing disease surveillance data
- 1.11 Investigating suspected outbreaks and other public health events
- 1.12 Preparing to respond to outbreaks and other public health events
- 1.13 Organizational framework of epidemic preparedness:
 - 1.13.1 National Epidemic Preparedness and Prevention Committee and responsibilities
 - 1.13.2 Provincial Epidemic and Prevention Committee and responsibilities
 - 1.13.3 District Epidemic and Prevention Committee and responsibilities
 - 1.13.4 Satellite Epidemic and Prevention Committee and responsibilities
- 1.14 Responding to outbreaks and other public health events
- 1.15 Communicating information during integrated disease surveillance and response
- 1.16 Monitoring, evaluating and improving disease surveillance and response

2. Port Health

- 2.1 Definitions of key concepts used in port health: affected; contamination; conveyance; decontamination; deratting; disinfection; disinsection; free pratique; health measure; point of entry port; and quarantine.
- 2.2 Purpose and scope of International Health Regulations
- 2.3 Public health measures at point of entry
 - 2.3.1 Health measures on arrival and departure
 - 2.3.2 Special provisions for conveyances and conveyance operators
 - 2.3.3 Special provisions for travellers
 - 2.3.4 Special provisions for goods, containers and container loading areas
- 2.4 Health documents required at designated airports, ports and ground crossings
 - 2.4.1 Certificates of vaccination or other prophylaxis
 - 2.4.2 Maritime Declaration of Health
 - 2.4.3 Health Part of the Aircraft General Declaration
 - 2.4.4 Ship sanitation certificates
- 2.5 Port health procedures
 - 4.3 Inspection of: airports, aircraft, dock premises and ships
 - 4.4 Control of vermin and vectors in aircrafts, marine vessels and vehicles
- 2.8 International Health Regulations

TEACHING METHODS

1. Lectures
2. Field trips
3. Group discussions
4. Practical
5. Presentations

NOTIONAL HOURS: 110 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Seminar: 1 hour per week
4. Field work: 2 hours per week
5. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- | | |
|-------------------|-----|
| 1.1 2 Tests | 20% |
| 1.2 2 Assignments | 10% |
| 1.3 Practical | 10% |

2.0 Final Examinations 60%

- | | |
|---------------|-----|
| 2.1 Theory | 40% |
| 2.2 Practical | 20% |

PRESCRIBED READINGS

1. World Health Organization (2008). **International Health Regulations**. 2005. Geneva: WHO Press.
2. World Health Organization and Centers for Disease Control and Prevention (2010). **Technical Guidelines for Integrated Disease Surveillance and Response in the African Region**. Brazzaville: WHO Press.

RECOMMENDED READINGS

1. World Health Organization (2002). **Weekly epidemiological record: An integrated approach to communicable disease surveillance**. Geneva: WHO Press.
2. World Health Organization (2005). **Communicable disease control in emergencies: A field manual**. Geneva: WHO Press.
3. World Health Organization and Centers for Disease Control and Prevention (2010). **Technical Guidelines for Integrated Disease Surveillance and Response in the African Region**. Brazzaville: WHO press

COURSE TITLE: APPLIED ENVIRONMENTAL HEALTH AND POLLUTION

COURSE CODE: PHS 312

INTRODUCTION

The course provides students with an understanding of environmental health and pollution control to enable them demonstrate the knowledge, skills and attitudes in specific areas of environmental management for sustainable public health. Further, the students should be able to demonstrate the skills in collaborating with other stakeholders in the enforcement of environmental management laws.

COURSE AIM

To enable the students demonstrate the knowledge, skills and attitudes in environmental health and pollution control.

COURSE OBJECTIVES

1. Explain key concepts used in environmental health and pollution control.
2. Elucidate the role of environmental science managing of environmental problems
3. Explain the significance of sustainable in relation to economic development
4. Explain the linkages between society, environment and economy in environmental Management and sustainable development
5. Describe the causes, effects and control measures of water pollution.
6. Explain the causes, effects and control measures of air pollution
7. Explain the causes, effects and control measures of soil pollution
8. Describe the causes, effects and control measures for noise pollution.
9. Describe the human health hazards associated with radiations
11. Describe current environmental issues
12. Describe the role of environmental education in environmental management.
13. Discuss strategic development impact assessment

COURSE LEARNING OUTCOMES

1. Explain key concepts used environment monitoring and pollution control.
2. Demonstrate an understanding of the associations between environmental pollution and health outcomes
3. Enumerate the sources and pathways of emissions into environmental media
4. Enforce environmental management laws in collaboration with other stakeholders involved in environmental management
5. Demonstrate an understanding of international conventions, protocols and treaties in environmental management.
6. Categorize pollutants
7. Categorize types of pollution
8. Describe the causes, effects and control measures of water pollution.
9. Explain the causes, effects and control measures of air pollution.
10. Explain the causes, effects and control measures of soil pollution.
11. Describe the causes, effects and control measures for noise pollution.
12. Describe the human health hazards associated with ionising radiations.
13. Describe the role of environmental education in environmental management.
14. State the objectives of environmental impact assessment.

15. Outline the stages involved in strategic environmental assessment in Zambia.
16. Explain the importance of public involvement in development impact assessment
17. Evaluate development impact assessment reports

COURSE CONTENT

1.0 Introduction to Environmental Health

- 1.1 Definition of the following terms: environment; environmental health
- 1.2 Pillars of environmental health
- 1.3 Environmental health services

2.0 Environmental Science

- 2.1 Definition of terms
- 2.2 Components of environmental science
- 2.3 Role of environmental science in solving environmental problems
- 2.4 Ecology
 - 2.4.1 Definition of terms in ecology
 - 2.4.2 Components of an ecosystem
 - 2.4.3 Flow of energy in an ecosystem
 - 2.4.4 Ecosystem stability
 - 2.4.5 Environmental resistance
 - 2.4.6 Population dynamics

2.5 Environmental systems

- 2.5.1 Definition of terms: system, environmental system
- 2.5.2 Kind of environmental systems
- 2.5.3 State of natural systems and their functional mechanisms
- 2.5.4 Environment as 'system'

2.6 Environmental spheres

- 2.6.1 Kind of spheres of the environment
 - Atmosphere and its segments (troposphere, stratosphere, mesosphere and thermosphere)
 - Hydrosphere
 - Geosphere
 - Biosphere
 - Anthrosphere
- 2.6.2 Human influence on the spheres of the environment and related impacts

3.0 Environment Protection and Sustainable Development

- 3.1 Definition of terms: environmental protection; sustainable development
- 3.2 Fundamental components of sustainable development
 - 3.2.1 Environment protection
 - 3.2.2 Economic growth
 - 3.2.3 Social equity
- 3.3 Approaches used to economic development
 - 3.3.1 Complementary approach
 - 3.3.2 Trade off approach
- 3.4 Measurements that determine natural capital of a nation
 - 4.4.1 Resource depletion
 - 4.4.2 Pollution reduction
- 3.5 Sustainable anthrosphere

3.7 Legal and institutional framework for environmental management in Zambia

4.0 Environmental Pollution

4.1 Definition of environmental pollution

4.2 Drivers of environmental pollution

4.3 Categories of Pollutants

4.3.1 Biodegradable pollutants

4.3.2 Non-biodegradable pollutants

4.4 Sources of Pollutants

4.4.1 Point sources

4.4.2 Non-point sources

4.5 Types and size of material pollutants

4.6 Types of environmental pollution

4.6.1 Air pollution

- Sources, effects on human health and environment, management

4.6.2 Water pollution

- Sources, effects on human health and environment, management

4.6.3 Soil pollution

- Sources, effects on human health and environment, management

4.6.4 Noise pollution

- Sources, effects on human health and environment, management

4.6.5 Hazardous waste

- Sources, effects on human health and environment, management

4.6.6 Radiation waste

- Definition of terms: radiation, radioactive waste, radioactive decay.
- Types of radiation (alpha, beta and gamma)
- Nature and properties of ionising radiation
- Use of radiation rays
- Health effects of radiation
- Sources of radiation (natural sources, anthropogenic sources, solid radioactive waste)
- Sources of radioactive waste (nuclear fuel cycle; nuclear weaponry manufacture; nuclear medicine; radiopharmaceutical manufacture; industrial uses)
- Hazards associated with ionising radiations on human health and the environment
- Monitoring and control of ionising radiation hazards

4.7 Nuclear energy

4.7.1 Definition of terms: nuclear energy, nuclear fission, nuclear fusion, atomic energy, nuclear reaction.

4.7.2 Types of nuclear energy

- Natural nuclear energy
- Man-made nuclear energy

4.7.3 Milestones in the history of nuclear energy

4.7.4 Advantages and disadvantages of nuclear energy

4.7.5 Nuclear fuel cycle and its significance

4.7.6 Impacts of nuclear energy on human health and the environment

4.7.7 Nuclear waste and disposal mechanisms

4.8 Factors affecting air pollution levels

4.8.1 Location and topography

4.8.2 Precipitation

4.8.3 Wind

4.8.4 Temperature inversions

4.9 Pollution taxonomy

4.9.1 Definition of pollution taxonomy

4.9.2 Classification of pollutants based on pollution taxonomy (by absorptive capacity, by horizontal zone of influence and by vertical zone of influence)

4.10 Pollution control at local and global levels

4.10.1 Mechanisms used to achieve reduction of pollution at local level

- Emission Charges
- Emission Standards
- Command and Control Regulations
- Pollution Rights
- Emission Offsets
- The Bubble
- Banking of Emissions
- Administrative controls of pollution
- Technological controls of pollution
- Reasons for Government intervention in the control of pollution at local level

4.10.2 Mechanisms of reducing pollution at global level

- Definition of terms: convention; protocol; treaty
- International conventions, protocols and treaties in environmental management: Rotterdam Convention; Stockholm Convention; and Basel Convention; Kyoto Protocol; Montreal Protocol.

5.0 Environmental Impact Assessment (EIA)

5.1 Definition of terms: environmental impact assessment; environmental project

Brief (EPB); agency; authorising agency; decision letter, developer; environmental mitigation audit; mass media; mitigation measures; development

5.2 Purpose of conducting EIA study

5.3 Historical perspective of environmental impact assessment

5.4 Approach and methodology of conducting EIA

5.5 The EIA process and its essential elements

5.6 Schedules for EIA and EPB projects

5.7 Administration of EIA

5.7.1 Major players in the EIA study

5.7.2 Institutional responsibilities

5.8 Guidelines for developers in conducting environmental impact assessment (major steps for a successful EIA process)

6.0 Current Environmental Issues

6.1 Ozone layer depletion

6.1.1 Definition of ozone layer

- 6.1.2 Causes of ozone layer depletion
- 6.2.3 Major constituents responsible for the depletion of stratospheric Ozone (chlorine atom from chlorofluorocarbons; hydroxyl ion from the water molecule; nitric oxide from nitric oxide molecules)
- 6.1.3 Effects of ozone layer depletion on human health and the environment
- 6.1.4 Mitigation measures against ozone layer depletion

7.2 Acid rain

- 6.2.1 Definition of acid rain
- 6.2.2 Causes of acid rain
- 6.2.3 Effects of acid rain on human health and the environment
- 6.2.4 Preventing acid rain

7.3 Climate change

- 6.3.1 Definition of climate change
- 6.3.2 Factors causing climate change (natural and human factors)
- 6.3.3 Impacts of climate change on human health and the environment

7.4 Global warming

- 6.4.1 Definition of global warming
- 6.4.2 Causes of global warming
- 6.4.3 Impacts of global warming on human health and the environment

8.0 Strategic environmental assessment

- 8.1 Defining strategic environmental assessment and environmental impact assessment
- 8.2 Aims/objectives of environmental impact assessment
- 8.3 Environmental impact assessment practice step-by-step
- 8.4 Public involvement in environmental impact assessment

9.0 Environmental Education

- 9.1 Definition of terms: environmental education; environmental problems/crises
- 9.2 Objectives of Environmental Education in Environmental Management
- 9.3 Principles of Environmental Education
- 9.4 The history of Environmental Education
- 9.5 Global major environmental problems
- 9.6 School Environmental Policy and management Plans
- 9.7 Milestones of Environmental Projects conducted in Zambia
- 9.8 Emerging responses to environmental crises at regional level
- 9.9 Indigenous Knowledge and Environmental Education
- 9.10 Contribution of Environmental Education to Sustainable Development

TEACHING METHODS

1. Lectures
2. Practical
3. Group discussions
4. Field visits
5. Case studies
6. Demonstrations

NOTIONAL HOURS: 100 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Practical/Lab work: 1 hour per week
4. Field work: 1 hour per week
5. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1. Continuous assessment 40%

- | | |
|-------------------|-----|
| 1.1 2 Tests | 20% |
| 1.2 2 Assignments | 10% |
| 1.3 Practical | 10% |

2. Final Examinations 60%

- | | |
|---------------|-----|
| 2.1 Theory | 40% |
| 2.2 Practical | 20% |

PRESCRIBED READINGS

1. Farmer, A. (2002). **Managing Environmental Pollution**, New York: Routledge,
2. UNEP (2004). **Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach**. Geneva: UNEP.
3. Wright, R.T., and Boorse, D.F. (2011). **Environmental Science: Toward a Sustainable Future**. Boston: Pearson Education

RECOMMENDED READINGS

1. The Royal Society of Chemistry (2001). **Pollution: Causes, Effects and Control**. Fourth Edition. Cambridge: The Royal Society of Chemistry.
2. Cheremisin N.P. (2001). **Handbook of Pollution Prevention Practices**. New York: Marcel Dekker, Inc.
3. Republic of Zambia (2008) **Integrated Water Resources Management and Water Efficiency**. Lusaka: Ministry of Energy and Water Development.

COURSE TITLE: COMMUNITY NUTRITION AND WELL-BEING

COURSE CODE: PHS 313

INTRODUCTION

The course provides the students with basic knowledge and understanding of various nutritional components, nutritional disorders and how they are resolved in the community.

COURSE AIM:

To equip students with knowledge, skills and attitude to prevent and manage common nutrition related conditions in the community.

COURSE OBJECTIVES:

1. Use the food groups to formulate mixed diets for different age groups
2. Utilise the food pyramid to plan diets for different age groups
3. Conduct nutrition education on prevention of nutritional disorders
4. Describe the changes that occur when foods are subjected to processing, preservation and storage
4. Discuss nutritional behaviours and requirements of men, women, children and the community

COURSE LEARNING OUTCOMES:

1. List the sources of various nutrients
2. Explain the common nutritional disorders
3. Relate a mixed diet to the prevention of nutritional disorders
4. Use the food groups to formulate mixed diets for different age groups
5. Utilise the food pyramid to plan diets for different age groups
6. Employ the daily dietary allowances to formulate a mixed diet for various age groups
7. Conduct nutrition education on prevention of nutritional disorders
8. Collect nutritional status data using common appropriate tools
9. Design personal and community nutritional programs and interventions
10. Analyse the importance of nutrition in personal and community infections
11. Market appropriate community interventions

CONTENT

4.0 Introduction to community nutrition:

- 4.1 Nutrition
- 4.2 Health and culture
- 4.3 Nutritional Assessment
- 4.4 Nutritional Surveillance
- 4.5 Nutrition and HIV/ Cancers

5.0 Health disparities:

- 5.1 Determinants of nutrition- and health-related behaviours;
- 5.2 Cultural food presentations

6.0 Food Guidance System:

- 6.1 Dietary Guidelines
- 6.2 Needs assessment and nutritional epidemiology
- 6.3 Community nutrition programs
- 6.4 National nutrition monitoring
- 6.5 Designing community nutrition interventions
- 6.6 Community nutrition and public policy
- 6.7 Creating educational materials for low literacy audiences

7.0 Social marketing:

- 7.1 Herbal supplements
- 7.2 Food insecurity and hunger
- 7.3 Promotion of community nutrition

8.0 Current issues:

- 8.1 Obesity and diabetes
- 8.2 Tools of the Trade (RDAs/RDIs)
- 8.3 Food labels
- 8.4 Health, Disease and Socioeconomic Factors
- 8.5 School Nutrition and Wellness Policy
- 8.6 Healthy People

10.0 Nutrition assessment methods

- 10.1 Anthropometry (Body Measurements)
- 10.2 Biochemical Assessment (Laboratory)
- 10.3 Clinical Assessment (Physical)
- 10.2 Dietary Assessment (Feeding History)

2.0 Introduction to nutrition:

- 1.1 Global perspectives of nutrition
- 1.2 National goals and policy guidelines
- 1.9 Evolution of malnutrition

3.0 Dietary requirements:

- 2.1 Measurement of dietary intake
- 2.2 Energy and protein requirements

3.0 Nutrition anthropometry:

- 3.1 Classification and definition of malnutrition
- 4.2 Nutritional indices
- 4.3 Growth monitoring
- 4.4 Nutrition surveillance.

7.0 Approaches to Mixed Diets:

- 7.1 Introduction
- 7.2 Food exchange
- 7.3 Food grouping
- 7.4 Food pyramid; and
- 7.5 Daily Dietary Allowances

8.0 Nutrition in Life Cycle:

- 8.1 Introduction
- 8.2 1000 critical days
- 8.3 Infant and Young Child Feeding
- 8.4 Option B-plus/PMTCT guidelines
- 8.5 School Age
- 8.6 Adolescents; and
- 8.7 Geriatrics

10.0 Skill Development

- 10.1 Cookery Demonstrations
- 10.2 Gardening

11.0 Practical

- 11.1 Demonstration of macro and micronutrients
- 11.2 Food analysis demonstrations
- 11.3 Food standards data interpretation and report
- 11.4 Applied nutrition assessment methods

TEACHING MATERIALS / EQUIPMENT

- 1. Standing scales
- 2. Scale measurements (Salter scales, spring scales, hanging scales, salter scale baby, multi-internal scale)
- 4. Under five cards
- 5. Mid Upper Arm circumference strips
- 6. Infant and young child feeding teaching manuals
- 7. Baby Scale (newly born babies)
- 8. Anthropometer
- 9. Measuring tapes (soft metric tapes)

10. Balance scale measurements (analytical balance scale, triple beam balance, electronic Balance, personal scale)
11. Spreading caliper
12. Pelvimeter
13. Stadiometer
14. Measuring tapes

TEACHING METHODS

1. Lectures
2. Group discussions
4. Demonstrations
5. Field visits

NOTIONAL HOURS: 100 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Practical/Lab work: 1 hour per week
4. Field work: 2 hours per week
5. Assessment and self-study: 1 hour per week

ASSESSMENT METHODS

- 1. Continuous assessment: 40%**
 - 1.1 2 Tests: 20%
 - 1.2 2 Assignments: 10%
 - 1.3 Practical 10%
- 2. Final Examinations: 60%**
 - 2.1 Theory: 40%
 - 2.2 Practical 20%

PRESCRIBED READINGS

1. Mahan, M.S K. (2011). Krause's **Food and Nutrition Care Process** 14th edition, Amazon
2. Ross, A. C and Caballero, B.M.D. (2012). **Modern Nutrition in Health and Disease**. Amazon.
3. Burgess et al. (2009). **Community nutrition: a handbook for health and development workers**. Oxford: Macmillan Education
4. Boyle, M. A and Holben, D. H (2005). **Community nutrition in action: an entrepreneurial approach**. 4th edition. Brooks Cole.

RECOMMENDED READINGS

1. Escott, S and Stump, M.A. (2011). **Nutrition and Diagnosis Related Care**, Amazon
2. Fada, L.D.N and Pronsky M. Z. (2012). **Food Medical Interactions** Spinal Bound
3. Marie, B.A and Hollen H. D. (2012). **Community Nutrition in Action**, 6th edition Amazon
4. Wardlaw, G.M. (2011). **Contemporary Nutrition**. 8th edition. New York: McGraw Hill
5. Whitney, N.E and Rolfes, R.S. (2012). **Understanding Nutrition**. Amazon
- Nweze, N. (2013). **Community nutrition, planning health promotion and disease prevention**. 2nd edition. Jones and Bartlett Learning.
6. Jay, J. M. (1996). **Modern food microbiology**. 5th Ed. Chapman and Hall

COURSE TITLE: NON-COMMUNICABLE DISEASES
COURSE CODE: PHS 314

INTRODUCTION

The course is designed to prepare students with appropriate knowledge, skills and attitudes to enable them identify and prevent and control non-communicable diseases. Management of non-communicable diseases is a multidisciplinary activity which seeks to holistically appreciate the predisposing factors or causes. The course is designed to provide students with fundamental principles of gathering and managing epidemiological data on non-communicable diseases so that management can be appropriately be applied both in terms of prevention and control.

COURSE AIM:

Students should be able to apply knowledge and skills of non-communicable diseases in a professional attitude thus developing managerial skills in prevention and control

COURSE OBJECTIVES:

1. Define the term non-communicable disease
2. Explain the epidemiology of non-communicable diseases
3. Discuss the burden of non-communicable disease
4. Describe signs, symptoms and prevention of non-communicable diseases
3. Outline legislation on non-communicable diseases
4. Describe diabetes in terms of prevalence, causes, general symptoms and management
5. Define hypertension
6. Explain the general causes and predisposing factors of hypertension
7. Explain health implications of obesity
8. Elucidate different types of cancers and their health implications
9. Explain the economic burden of tobacco use
10. Describe methods of control of tobacco use

COURSELEARNING OUTCOMES:

1. Identify common signs and symptoms of non-communicable diseases
2. Differentiate between communicable and non-communicable disease
3. Formulate a plan for control of non-communicable diseases
4. Formulate strategies in the control of communicable diseases
5. Identify neglected tropical diseases of public health importance in Zambia
3. Classify non-communicable diseases
4. Demonstrate understanding of diseases of lifestyle
5. Demonstrate appropriately the skills through working stakeholders in control of non-communicable diseases
6. Analyse the epidemiological data of non-communicable diseases in order to make management decision on the preventive strategies as an 'integrated health team'
7. Enforce legislation related to tobacco use in public places such as taverns/bars, restaurants and other premises

COURSE CONTENT

1.0 NON-COMMUNICABLE DISEASES

1.3 Introduction to non-communicable diseases

- 1.3.1 Epidemiology of non-communicable diseases (NCDs)
- 1.3.2 Importance of NCDs
- 1.1.3 Risk factors for NCDs
- 1.1.4 Burden of NCDs

1.2 Diabetes:

- 1.2.1 Prevalence of diabetes
- 2.2.2 Causes of diabetes
- 2.2.3 General symptoms of diabetes
- 2.2.4 Management of diabetes
- 2.2.5 Available tests
- 2.2.6 Community diagnosis
- 2.2.7 Control schemes of diabetes

1.3 Hypertension:

- 1.3.1 Prevalence of hypertension
- 1.3.2 General symptoms hypertension
- 1.3.3 Predisposing factors of hypertension
- 1.3.4 Cardiovascular diseases routine screening
- 1.3.5 Life style and management

1.4 Cancers

- 1.4.1 Prevalence and incidence of cancers
- 1.4.2 Prevention and control of:
 - Cervical cancer
 - Breast cancer
 - Liver cancer
 - Prostate cancers

1.5 Tobacco:

- 1.5.1 Tobacco use epidemic
- 1.5.2 Tobacco and diseases
- 1.5.3 Economic burden of smoking
- 1.5.4 Second hand smoke
- 1.5.5 Smoking cessation/control strategies

1.6 Obesity

- 1.6.1 Description of obesity
- 1.6.2 Incidence of obesity
- 1.6.3 Health implications of obesity
- 1.6.4 Dietary principles and control
- 1.6.5 Life style and social factors

1.7 Common Disorders of Inheritance in Zambia (Sickle Cell Disease)

1.7.1 Legislation on communicable and non-communicable diseases

1.7.2 Notifiable diseases in Zambia as per the Public Health Act CAP 295

1.7.3 International notifiable diseases as per the International Health Regulations of 2005

1.7.4 Public Health Act Cap 295 Section 9 (1)

1.7.5 Public Health (Infectious Diseases) Regulations

TEACHING METHODS

1. Lectures

2. Tutorials

6. Group discussions

7. Individual student presentations

NOTIONAL HOURS: 120 HOURS

1. Lectures: 3 hours per week

2. Tutorial: 1 hour per week

3. Seminar: 3 hours per week

4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

1.1 2 Tests 30%

1.2 2 Assignments 10%

2.0 Final Examinations 60%

2.1 Theory 60%

PRESCRIBED READINGS

1. J. P. Narain, J.P., Kumar, R. (2016). **Textbook of chronic non-communicable diseases: The health challenge of 21st century**. New Delhi 270: Jaypee Brothers Medical Publishers (P) Ltd. ISBN 978-93-5250-043-7.

2. McQueen, V.D. (2013). **Global Handbook on Non-communicable Diseases and Health Promotion. Hardcover ISBN978-1-4614-7593-4; Softcover ISBN978-1-4939-5249-6; eBook ISBN978-1-4614-7594-1**

RECOMMENDED READINGS

1. Shyam, S. (2020). **Textbook of Non-Communicable Diseases: A Global Pandemic**. ISBN-13: 979-8633238624

2. Park, K. (2011). **Prevention and Social Medicine**. New Delhi: Prem Nagar,

COURSE TITLE: RESEARCH METHODOLOGY AND BIOSTATISTICS
COURSE CODE: PHS 315

INTRODUCTION

The course is designed to prepare students with appropriate knowledge and skills on basic biostatistics, and overview of the research process including investigation of health-related events that will be used for directing public health action.

COURSE AIM

To provide a solid foundation for the students to apply approaches of biostatistics, and research methods in their functional duties of their jurisdictions

COURSE OBJECTIVES

1. Identify a research problem and formulate an appropriate research question/hypothesis.
2. Identify an appropriate study design and necessary data for answering the question.
3. Apply biostatistical concepts and tools critical in biomedical (Public health) evaluation
4. Describe practical application of statistical models of probability that are commonly used in sampling distributions.
5. Demonstrate knowledge of how to summarize data and use statistical methods.
6. Describe principles of epidemiology and their relevance in the control of diseases
7. Synthesize and interpret study results.
8. Analyse quantitative and qualitative data using frequency tables and graph
9. Carry out basic biostatistical and analytical skills

COURSE LEARNING OUTCOMES

10. Formulate research question
11. Formulate hypothesis.
12. Answer questions on the study design and necessary data
13. Summarize data and use statistical methods.
14. Conduct research
15. Synthesize study results
16. Interpret study results
17. Analyse quantitative and qualitative data using frequency tables and graph
18. Carry out basic biostatistical and analytical skills
19. Uses tables, graphs, and charts to organize, summarize, and display data
20. Conducts an outbreak investigation
21. Analyses public health surveillance results for directing public health action
22. Demonstrate the use of computer packages e.g. EPI-INFO, SPSS, and/or STATA in the application of the different statistical methods taught
23. Summarise and present quantitative data using frequency tables and graphs

COURSE CONTENT

UNIT ONE: RESEARCH METHODOLOGY

1.0 Introduction to Research Methodology

- 1.1 Meaning of Research
- 1.2 Objectives of Research
- 1.3 Motivation in Research
- 1.4 Types of Research
- 1.5 Research Approaches
- 1.6 Significance of Research
- 1.7 Research Methods versus Methodology
- 1.8 Research and Scientific Method
- 1.9 Importance of Knowing How Research is Done
- 1.10 Research Process
- 1.11 Criteria of Good Research
- 1.12 Problems Encountered by Researchers

2.0 Defining the Research Problem

- 2.1 What is a Research Problem?
- 2.2 Selecting the Problem
- 2.3 Defining the Problem
- 2.4 Technique Involved in Defining a Problem

3.0 Research Design

- 3.1 Meaning of Research Design
- 3.2 Need for Research Design
- 3.3 Features of a Good Design
- 3.4 Important Concepts Relating to Research Design
- 3.5 Different Research Designs
- 3.6 Basic Principles of Experimental Designs
- 3.7 Developing a Research Plan

4.0 Sampling Design

- 4.1 Census and Sample Survey
- 4.2 Implications of a Sample Design
- 4.3 Steps in Sampling Design
- 4.4 Criteria of Selecting a Sampling Procedure
- 4.5 Characteristics of a Good Sample Design
- 4.6 Different Types of Sample Designs
- 4.7 How to Select a Random Sample?
- 4.4 Random Sample from an Infinite Universe
- 4.5 Sample size calculation
 - 4.8.1 Estimating Population Proportion
 - 4.8.2 Sample Size and its Determination
 - 4.8.3 Determination of Sample Size through the Approach
 - 4.8.4 Based on Precision Rate and Confidence Level

5.0 Measurement and Scaling Techniques

- 5.1 Measurement in Research
- 5.2 Measurement Scales
- 5.3 Sources of Error in Measurement
- 5.4 Tests of Sound Measurement
- 5.5 Technique of Developing Measurement Tools
Scaling
- 5.6 Meaning of Scaling
- 5.7 Scale Classification Bases
- 5.8 Important Scaling Techniques
- 5.9 Scale Construction Techniques

6.0 Methods of Data Collection

- 6.1 Collection of Primary Data
- 6.2 Observation Method
- 6.3 Interview Method
- 6.4 Collection of Data through Questionnaires
- 6.5 Collection of Data through Schedules
- 6.6 Difference between Questionnaires and Schedules
- 6.7 Some Other Methods of Data Collection
- 6.8 Collection of Secondary Data
- 6.9 Ethics in Research

7.0 Processing and Analysis of Data

- 7.1 Processing Operations
- 7.2 Some Problems in Processing
- 7.3 Elements/Types of Analysis

8.0 Interpretation and Report Writing

- 8.1 Meaning of Interpretation
- 8.2 Why Interpretation?
- 8.3 Technique of Interpretation
- 8.4 Precaution in Interpretation
- 8.5 Significance of Report Writing
- 8.5 Different Steps in Writing Report
- 8.6 Layout of the Research Report
- 8.7 Types of Reports
- 8.8 Oral Presentation
- 8.9 Mechanics of Writing a Research Report
- 8.9 Precautions for Writing Research Reports
- 8.10 Conclusions

UNIT TWO: BIOSTATISTICS

1. Introduction to Biostatistics
2. Scales of measurements
3. Sources and presentation of data
4. Measures of Location-Averages and Percentiles
5. Variability and its Measures
6. Normal Distribution and Normal curve.
7. Sampling.
8. Probability
9. Hypotheses formulation and hypothesis testing (Parametric and Non-Parametric Tests of Hypotheses)
10. Sampling variability and Significance
11. Significance of difference in Means.
12. Significance of Difference in Proportions of large Sample
13. The Chi-square Test
14. Analysis of Variance and Covariance
15. Multivariate Analysis Techniques
16. Correlation and Regression
17. Designing and Methodology of an Experiment or a Study
18. Demography and Vital statistics
19. Measures of Population and Vital Statistics
20. Life Table.
15. The Computer: Its Role in Research
 - 15.1 The Computer and Computer Technology
 - 15.2 Computer Applications
 - 15.3 Computers and Researcher
 - 15.4 Commercial statistical package
 - 15.5 Practical Analysis in Computer laboratory

TEACHING METHODS

1. Lectures
2. Tutorials
3. Practical
4. Group discussions
5. Presentations

NOTIONAL HOURS: 120 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 2 hours per week
3. Seminar: 1 hour per week
5. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

1.1 1 Test 10%

1.2 2 Assignments 10%

1.3 Computer Lab test 20%

2.0 Final Examinations 60%

2.1 Theory 60%

PRESCRIBED READING

1. Daniel, W. W. (1991). **Biostatistics foundation for analysis in the health sciences**. New York: John Wiley and Sons, ISBN 0-471-52514-6
2. Kothari, C.R. (2004). **Research Methodology: Methods and Techniques**. New Delhi: New Age International (P) Ltd.

RECOMMENDED BOOKS

4. Koning, and Martin, M eds. (1996). **Participatory research in health**. London: Zed book. ISBN 1-85649-352-2 (hb) or-0 (pb).
5. Varkevisser, C. M. et al. (1992). **Designing and conducting health systems research projects**. Vol.2 part 1. Ottawa, Canada. ISBN 0-88936-584-9.
6. Varkevisser, C. M., Pathmanathan, I. And Brownlee, A. (1992). **Designing and conducting health systems research projects**. Vol.2 part I. Ottawa, Canada. ISBN 0-88936-584-9.

COURSE TITLE: INDUSTRIAL TRAINING 1

COURSE CODE: PHS 316

INTRODUCTION

The course is designed to expose students to rural and urban communities (Community Health) for them to gain practical experience and therefore students' attachment to district health offices is of great significance at this stage. The practical experience gained during this course provides an acquisition of skills and attitude in various disciplines of Public health such as disease control, public health administration, water quality monitoring, sanitation, meat inspection, waste management, food safety, pest control and chemical safety. The industrial training will last for six (6) during which period the students are expected to acquire practical skills

COURSE AIM

To enable students demonstrate the application of skills in the running of rural and urban public health services.

COURSE OBJECTIVES

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

1. Describe strategies of disease control
3. Explain administrative procedures in a public health office
4. Describe the procedure of conducting water surveillance
5. Explain the processes of waste water treatment
6. Elucidate the process of immunising domestic dogs against rabies
7. Describe the procedure of conducting meat inspection
8. Describe principles of food safety
9. Describe the safety measures when dealing with chemicals

COURSE LEARNING OUTCOMES

1. Carryout control of communicable disease operations.
2. Conduct inspection of premises
3. Immunize dogs against rabies
4. Organise and plan for surveillance of stray dogs in liaison with the Veterinary Department and the Local Authority
5. Conduct community nutritional surveillance as part of an integrated health team
6. Carry out community nutritional assessment
7. Organize and plan for dog immunisation campaigns as part of an integrated team
8. Conduct Health Education as a tool in the control of communicable diseases
9. Collect water samples for biological and chemical analysis
10. Conduct meat and other foods inspections.
11. Conduct spraying operations
12. Conduct inspection of carcasses for food animals and take appropriate action according to Public Health Act.
13. Take water samples
14. Carry out surveillance in water supply, sanitation and sewerage systems
15. Conduct inspection of food premises, rest houses schools, lodges, hotels etc.
16. Conduct community nutrition surveillance

COURSE CONTENT

1.0 COMMUNITY HEALTH

- 1.1 Attend at least one or more district health management team meetings, district health board meetings and at least one sub-committee.
- 1.2 Investigate at least four different types of potential nuisances or conditions prejudicial to health.
- 1.3 Recognise and understand at least four different pest infestations, two of which must involve different invertebrate pests e.g. wasps, cockroaches, pharaohs ants etc. and two of which must involve mammalian or avian pests e.g. rats, mice, bats, etc
- 1.4 Identify three potential epidemics of disease and implement control measures, monitor continued development and recurrence.
- 1.5 Demonstrate your knowledge of the procedures to be followed in dealing with premises and/or persons found to be in a filthy and/or verminous condition by documenting your involvement with at least one actual or suspected case

2.0 FOOD SAFETY

- 2.1 Inspect one premises under Public Health (Meat, abattoir and butcheries) Regulations
- 2.2 Inspect one restaurant approved under the Food and Drugs Act
- 2.3 Inspect either (a) a dairy or (b) a daily products plant approved under the Public Health (Milk products) Regulations and Dairy and Dairy Produce Act Cap 230
- 2.4 Inspect at least one of each of the following types of premises: A food retailer (not being a butcher) selling a range of open foodstuffs; A restaurant, café or canteen; A takeaway facility (not being combined with 'eat in' premises), either static or mobile; a hotel kitchen rated 3-5 stars; bakery, confectionary, meat processing/canning and ice cream manufacturing; A thermal processing plant, e.g., one undertaking canning, aseptic packaging or pasteurisation; and a milling plant.
- 2.5 Document your involvement with at least two cases of food not of the nature, or substance, or quality demanded or that is wrongly labelled
- 2.6 Investigate two cases of food poisoning and foodborne disease, of which at least one should have been an outbreak.
- 2.7 Inspect two butchers' shops that are the subject of butchers' shop licensing.
- 2.8 Investigate at least two food complaints

3.0 BUILT ENVIRONMENT

- 3.1 Inspect three properties with a view to determining fitness for habitation. At least one of the inspections must be in relation to a dwelling which is, or has been, deemed to be unfit for habitation
- 3.2 Conduct four investigations into different types of nuisances or conditions likely to be prejudicial to health

4.0 WATER AND SANITATION

- 4.1 Inspect various sources of rural water supplies
- 4.2 Inspect urban drinking water treatment plants
- 4.3 Conduct water quality surveillance
- 4.4 Participate in the construction of sanitary facilities

- 4.5 Inspect wastewater treatment plants
- 5.6 Inspect septic tanks and associated soakaways

5.0 COMMUNITY NUTRITION SURVEILLANCE

5.1 Anthropometric measurements

- 5.1.1 Weight stature
- 5.1.2 Abdominal circumference
- 5.1.3 Skinfold test
- 5.1.4 Biometrical impedance
- 5.1.5 Body mass index (BMI): weight to height ratio
- 5.1.6 Body circumference (arm, waist, hip and calf)
- 5.1.7 Waist to hip ratio (WHR): waist circumference divided by the hip circumference
- 5.1.8 Elbow amplitude
- 5.1.9 Knee-heel length

TEACHING METHODS

1. Tutorials
2. Field visits
3. Demonstrations
4. Practical attachment to institutions/organisations/industry
5. Report writing

NOTIONAL HOURS: 80 HOURS

1. Tutorial: 2 hours per week
2. Seminar: 1 hour per week
3. Practical/Lab work: 1 hour per week
4. Field work (including report writing): 10 hours per week
5. Assessment and self-study: 1 hour per week

ASSESSMENT METHODS

1.0 Summative assessment:	100%
1.1 Presentation of the report to his/her peer	10%
1.2 Written report	30%
1.3. Practical log book	60%

PRESCRIBED READINGS:

1. Bassett W.H. (2004). **Clay's Handbook of Environmental Health**. London: Spon Press.
2. Koren, H., Bisesi, M. (2003). **Handbook of Environmental Health: Biological, Chemical and Physical agents of Environmentally Related Disease**. Fourth Edition, Vol. 1. New York: Lewis Publishers

RECOMMENDED READINGS

1. Afubwa, S.O., and Mwanthi, A.M. (2014) **Environmental Health and Occupational Health and Safety**. Nairobi: Acrodile Publishing Ltd
2. Stewart, J. (2001). **Environmental Health and Hosing: Clay's Library of Health and the Environment**. Volume 1. London: Spon Press.

YEAR THREE SEMESTER TWO

Course Codes	Course Titles
PHS 321	Business Environment and Entrepreneurship in Public Health
PHS 322	Strategic Management and Marketing in Health Care System
PHS 323	Food Safety and Food Inspections
PHS 324	Mental Health
PHS 325	Evidence Based Practice in Public Health
PHS 326	Research Project 1

COURSE TITLE: BUSINESS ENVIRONMENT AND ENTREPRENEURSHIP IN PUBLIC HEALTH

COURSE CODE: PHS 321

INTRODUCTION

The course is designed to introduce students to the basic concepts in business environment and entrepreneurship, identification of opportunities, business evaluation and analysis. It provides students with the skills needed to effectively organize, develop, create, and manage their own business. Business Environment needs to be studied by analyzing the macro environmental factors in depth such as economic, political & legal, socio-cultural, technological and international environment. Therefore, the course is based upon professional development foundations. The course further explores adventure, a personal journey, and a significant learning experience for the student. The course gives students an opportunity to make creative adjustments to meet personal needs and increase motivation. It helps student gain an understanding of the context in which entrepreneurship is developed and applied. In order to do this, students are introduced to the history of entrepreneurship, key theories relevant to the entrepreneurs, contributors to the entrepreneurship body of knowledge and the future of entrepreneurship.

COURSE AIM:

The course aims at providing skills and the theoretical framework of Business Environment – its concept, significance and changing dimensions. It further aims at broadening the entrepreneurship-scope within which students are motivated with the mind of creativity and innovation in business planning, evaluation and analysis.

COURSE OBJECTIVES

1. Define the following terms: Business, Industry and Market
2. Understanding of Business as a Discipline
3. Discuss the basic principles of Business
4. Demonstrate the understanding of business and its interdependence with economics, politics ,legal, society and culture
5. Demonstrate the understanding of Economics and Environment
6. Demonstrate the understanding of government systems and legal rules affecting business and society.
7. Demonstrate the understanding of the origins of entrepreneurship and an entrepreneur
8. Identify, evaluate, and select business opportunities in Public Health.
9. Perform a self-evaluation to match their own characteristics with that of an entrepreneur.
10. Carry out feasibility and viability of an investment opportunity
11. Analyze and exploit the Entrepreneurial Environment provided by the political frame work.

COURSE LEARNING OUTCOMES

1. Perform self-evaluation to match business opportunities
2. Analyse the entrepreneurial environment
3. Ensure start-up, survival, sustainability of an investment opportunity
4. Identify their own personal entrepreneurial potential, ability, and competences
5. Identify, and exploit business opportunities and resources
6. Demonstrate the understanding of the theories and significance and changing dimensions of the Business environment
7. Identify various types of Business Environment and tools for scanning the Environment
8. Gain insights on role of economic systems, economic planning, government policies, public sector and development banks, economic reforms, liberalization and its impact on business.
9. Appreciate the importance and impact of changing laws and regulations on a business firm.
10. Learn about emerging dimensions in socio-cultural environment and its relevance for a business firm.
11. Demonstrate the understanding of the the importance of Multinational corporations, foreign collaborations and international institutions in business.
12. Gain insights on patent laws, policy on research and development and new technological developments in Business Environment.

COURSE CONTENT

UNIT ONE: BUSINESS ENVIRONMENT

1.0 Introduction to Business Environment

- 1.1 Concept and Significance
- 1.2 Understanding Environment Scanning and Economic Environment
- 1.3 Economic Planning and Policy Framework
- 1.4 Government Policies: Fiscal and Monetary Policy
- 1.5 EXIM Policy and Role of Public Sector in Economic Development
- 1.6 Economic Reforms in Zambia
- 1.7 Effect of Structural Adjustment Policies and Political Environment in Business
- 1.8 Role of Government and Legal Environment in Business
- 1.9 Importance of Consumer Protection Act and Socio-Cultural Environment
- 1.10 Importance of Social Institutions and Values and Attitudes in Business
- 1.11 Growth of Rural Sector In Zambia and importance of Corporate Social Responsibility
- 1.12 Pros and Cons of MNCs and Foreign Collaborations
- 1.13 Role of Foreign Trade Policies and Technological Environment in Business

UNIT TWO: ENTREPRENEURSHIP THEORY

1.1 Introduction to Entrepreneurship Theory

- 1.1.1 Origins of entrepreneurship and an entrepreneur.
- 1.1.2 Theories that govern entrepreneurship development.
- 1.1.3 Contextual framework in which entrepreneurship is developed and applied.
- 1.1.4 Analysis of future of entrepreneurship development.

2.2 Intellectual, Practical and Transferable skills

- 1.1.1 Development of business concept
- 1.1.2 Creativity and innovation
- 1.1.3 Problem solving
- 1.1.4 Analytical skills
- 1.1.5 Entrepreneurial skills
- 1.1.6 Business opportunities and resources
- 1.1.7 Investment opportunities and survival skills in a volatile business environment

TEACHING METHODS

- 1. Lectures
- 2. Tutorials
- 3. Group discussions
- 4. Field visits
- 5. Demonstrations

6. Presentations

NOTIONAL HOURS: 80 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Seminar: 1 hour per week
4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- | | |
|-------------------|-----|
| 1.1 2 Tests | 30% |
| 1.2 2 Assignments | 10% |

2.0 Final Examinations 60%

- | | |
|------------|-----|
| 2.1 Theory | 60% |
|------------|-----|

PRESCRIBED READINGS

1. Thomas, W., & Scarborough, N.M. (2004) **Effective small business management: An entrepreneurial approach.** New Delhi: Prentice Hall International.
2. Thompson, A. (2000) **Understanding the proof of Business Concept.** New Age International
3. Timmons, J.A., & Spinelli, S., (2003) **New Venture Creation: Entrepreneurship for the 21st Century.** Boston: 6th Ed, McGraw-Hill
4. Peters, H. & Peters, M. (1995) **Entrepreneurship: Starting, developing and managing a new enterprise.** London: Richard Irwin Inc.

RECOMMENDED READINGS

1. Gupta, C.B. and Srinivasan, N.P. (1996) **Entrepreneurship Development.** New Delhi: Sultan & Chand & Sons Publishers
2. Holt, D. (2001) **Entrepreneurship: New Venture Creation.** New Delhi: Prentice Hall International.
3. Kao, J. (1989) **Entrepreneurship, Creativity and Organization.** New Delhi: Prentice Hall International.
4. Kumar, S. (2003) **Entrepreneurship Development.** New Age International publication.
5. Robert, D & Peters, H (1992) **Towards an organization model for entrepreneurial education.**
6. Wickham, P.A. (2004) **Strategic Entrepreneurship.** 3rd Ed. London: Pitman Publishing

COURSE TITLE: STRATEGIC MANAGEMENT AND MARKETING IN HEALTH CARE ORGANISATIONS

COURSE CODE: PHS 322

INTRODUCTION

The course introduces students to the concepts and scope of strategic management; strategic management process, implementation, evaluation and control business strategies

COURSE AIM

The course aims at providing an understanding of the scope of strategic management and strategic issues facing the firm as whole in light of the environmental dynamics and development.

COURSE OBJECTIVES

1. Demonstrate an understanding of strategic issues facing the firm as a whole in light of environmental developments
2. Comprehend concept and scope of strategic management
3. Examine strategic management process
4. Define marketing concepts
5. Analyse a marketing environment
6. Classify market and buyer behaviour
7. Conduct a market research
8. Carry out market segmentation and targeting
9. Carry out product planning and development
10. Devise pricing strategies and techniques
11. Design a distribution network
12. Apply promotion techniques
13. Practice customer care
14. Practice social marketing in Public Health
15. Apply sales techniques in Public Health

COURSE LEARNING OUTCOMES

1. Demonstrate understanding of the concept and scope of strategic management
2. Examine strategic management process
3. Craft business strategies
4. Implement, evaluate and control business strategies.
5. Develop skills in business analysis and strategic thinking.
6. Gain an insight into the processes of strategic leadership and into the management of strategic change.
7. Develop a framework that can enhance their learning through case analysis disciplines of the programme.

COURSE CONTENT

1.0 INTRODUCTION TO STRATEGIC MANAGEMENT AND MARKETING

- 1.1 Definitions
- 1.2 Principles of strategic planning
- 1.3 Strategic performance management models
- 1.4 Basic economic concepts (markets, supply and demand, allocation of resources)
- 1.5 External environment Analysis
- 1.6 Internal environment Analysis
- 1.7 Involving stakeholders
- 1.8 Governance (Co-operate and Business level functions)
- 1.9 Developing the Strategic Plan.
- 1.10 Use of the balanced score card and strategy maps
- 1.11 Vision and mission statements, objectives, strategic planning and control
- 1.1 Strategy formulation, generic competitive strategy and advantage
- 1.13 Managing strategic change.

2.0 INTELLECTUAL, PRACTICAL AND TRANSFERABLE SKILLS

- 2.1 Creative and innovative
- 2.2 Problem solving
- 2.3 Analytical skills,
- 2.4 Team work
- 2.5 Communications skills
- 2.6 Entrepreneurial skills

TEACHING METHODS

- 1. Lectures
- 2. Tutorials
- 3. Group discussions
- 4. Field/Site visits
- 5. Demonstrations
- 6. Student led seminar presentations
- 7. Case studies

NOTIONAL HOURS: 80 HOURS

- 1. Lectures: 3 hours per week
- 2. Tutorial: 2 hours per week
- 3. Seminar: 1 hour per week
- 4. Field work: 2 hours per week
- 5. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- 1.1 2 Tests 30%
- 1.2 2 Assignments 10%

2.0 Final Examinations 60%

- 2.1 Theory 60%

PRESCRIBED READINGS

1. Wickham, P.A. (2004) **Strategic Entrepreneurship**. 3rd Ed. London: Pitman Publishing

RECOMMENDED READINGS

1. Kumar, S. (2003) **Entrepreneurship Development**. New Age International publication.
2. Robert, D & Peters, H (1992). **Towards an organization model for entrepreneurial education.**

COURSE TITLE: FOOD SAFETY AND FOOD INSPECTIONS

COURSE CODE: PHS 323

INTRODUCTION

This course will introduce the principles of food hygiene and safety. It shall impart knowledge on food safety and control, food inspections and supportive enforcement measures that can contribute to food hygiene and safety. Furthermore a relation between the built environment, food hygiene and safety shall be emphasized, where knowledge of risk rating food premises shall be shared.

COURSE AIM

To produce a Public Health Practitioner with competences to advise on principles of food hygiene and safety practices, and enforce food laws.

COURSE OBJECTIVES

1. Identify the essential principles of food hygiene
2. Relate food hygiene to design of adequate infrastructure.
3. List principles of food hygiene
4. Describe different food additives
5. Elucidate food premises risk rating
6. Describe different types of food safety laws

COURSE LEARNING OUTCOMES

1. Implement food premises risk rating
2. Use HACCP (Hazard Analysis Critical Control Point) technique
3. Enforce food safety laws
4. Identify other foods
5. Manage food safety systems
6. Implement food premises risk rating
7. Enforce food safety laws
8. Identify various foods safety systems
9. Identify spices in foods level limits
10. Identify colours in foods level limits
11. Calculate risk rate in food premises

COURSE CONTENT

UNIT ONE: FOOD SAFETY AND HYGIENE:

1.0 Introduction to food hygiene and food poisoning

1.1 Introduction: The importance of safe and wholesome food (Cost of illness, effect on manpower, danger of epidemics, effect on tourism); aesthetic considerations; and healthy eating

2.0 Food poisoning

2.1 Microbial agents and characteristics of organisms

2.2 Infection caused by microorganisms

2.3 Infection caused by agents other than microorganisms

2.3.1 Animal toxins and parasitic infections,

2.3.2 Poisoning by animals

2.3.3 Reservoir of infection and ways of spread

2.3.4 Food analysis and bacteriological

2.4 Chemical and metallic poisoning

2.4.1 Common chemicals and metals in food poisoning

2.4.2 Poisonous plants (certain mushrooms, plants and moulds such as aspergillus)and fish

2.4.3 Mycotoxins

2.4.4 Investigation of food poisoning outbreaks

2.5 Common food borne diseases

2.5.1 The etiology of diseases commonly caused by infected foods

2.5.2 Other illness associated with food

2.5.2.1 Brucellosis, cryptosporidiosis, dysentery, giardiasis, hepatitis, listeriosis, typhoid and tuberculosis

2.5.2.2 Bovine spongiform encephalopathy (BSE)

2.5.2.3 Parasites affecting food and or man

2.5.3 Investigation into food borne illness: Extent of outbreak, questionnaire design, investigation techniques, record of symptoms and their severity, detail of foods and drinks consumed previously and with whom, samples of left over foods, specimen of stool and vomitus, collation of investigation results and interpretation of their probabilities

3.0 Principles for Food safety

3.1 Quality control and principles of Hazard Analysis Critical Control Point (HACCP)

3.2 Quality control: Definition, principles of quality assurance and purpose of quality control programme, setting standards, adulteration of foods, external quality control activities, importance of food standards and legislation, sensory assessment of foods and analysis of results

3.3 Quality assurance systems and Good Manufacturing Practice/Good Hygienic Practice (GMP/GHP)

- 3.4 Preparing for HACCP: Management, personnel, training and prerequisites; baseline audit and gap analysis in relation to: time and temperature; cleaning and disinfection; personal hygiene; pest control and prevention of cross-contamination
- 3.5 Development of HACCP plan: What is HACCP plan, describe the product and flow diagram, critical control points, control limits, monitoring requirements and corrective actions
- 3.6 Implementation of HACCP: Implementation requirements and team training, monitoring system, record keeping, facilities and equipment, confirmation and verification that implementation plan is complete
- 3.7 Maintaining HACCP plan: Verification through audit, data analysis, keeping abreast of emerging hazards, updating and amending HACCP plan, ongoing training programs

4.0 Food Contamination and its Prevention

- 4.1 Contamination by micro-organisms
- 4.2 Vehicle and routes of bacterial contamination
- 4.3 Physical contamination; identification of hazards and control measures
- 4.4 Chemical contamination

5.0 The Storage and Temperature Control of food

- 5.1 Stock rotation; dry food stores; shelving, storage containers; chilled rooms, refrigerators and deep freezers
- 5.2 Refrigerators
- 5.3 Storage of frozen food
- 5.4 Cook-chill
- 5.5 Safety of chilled foods
- 5.6 Cook-freeze
- 5.7 Vending machines

6.0 Food Spoilage and Preservation

- 6.1 Food Spoilage
- 6.2 Food preservation techniques with chemicals and their application to various foodstuffs
- 6.3 Food preservation with low-temperature
- 6.4 Food preservation with high-temperature
- 6.5 Chemical methods of food preservation
- 6.6 Physical methods of preservation e.g. by drying
- 6.7 Food preservation with radiation
- 6.8 Traditional methods

7.0 Personal Hygiene

- 7.1 Medical examination; training; protective clothing; hair covering; jewellery; gloves; first aid kit
- 7.2 Personal habits and hand washing

8.0 Food hygiene

- 8.1 Food hygiene in the retail trade: Delicatessen and cooked meat sales, bakeries, fresh meat sales, wet fish sales and produce sales
- 8.2 Misuse of insecticides and antibiotics
- 8.3 Premises layout: Handling of food materials, layout and integration of different materials
- 8.4 Staff selection, training, post appointment, exclusion of food handlers

9.0 Design and Construction of Food Premises

- 9.1 Design and construction of premises
 - 9.1.1 The siting, general design principles and structural techniques
 - 9.1.2 Construction of ceiling
 - 9.1.3 Walls and floors
 - 9.1.4 Lighting
 - 9.1.5 Ventilation and air conditioning
 - 9.1.6 Noise and vibration and maintenance
 - 9.1.7 Fittings and furnishings
- 9.2 Raw materials
 - 9.2.1 Feedstock for the food industry
 - 9.2.2 System for raw material hygiene audit
 - 9.2.3 Raw materials as purchased product
 - 9.2.4 Supplier assurance assessments and audit
 - 9.2.5 Preventive corrective action and verification

10.0 Cleaning and Disinfection

- 10.1 Cleaning and disinfecting systems: Cleaning schedules, Cleaning products and methods, Proactive cleaning, Monitoring procedures, Safety and supply of chemicals, Water hygiene for cooling and Domestic water systems
- 10.2 Cleansing and sterilizing techniques: Soaps; detergents; washing creams; bactergents; scouring powders and pads; floor cleaners and polishers; and planned cleaning

11.0 Pest control

- 11.1 Pest and hazard control: Danger of rats, mice, cockroaches, fleas, ants, cats and birds and their breeding habits and control
- 11.2 Use of hazardous chemicals near food or use of unsuitable metals in contact with food
- 11.3 Dangers from broken glass, nuts and bolts or packaging materials in food

UNIT TWO: FOOD INSPECTIONS

1. Milk and milk products

- 1.1 Introduction: Diseases associated with milk, sources of bacterial infection and keeping quality
- 1.2 Composition of milk and milk products: Variations in composition, abnormalities in milk including characteristics of different breeds of cow
- 1.3 Prevention of contamination: Animal health, milking practice, cow sheds, dairies, milking pails, washing and sterilizing equipment, farm storage, delivery to milk factory, distribution, siting, construction and design of premises, equipment and fittings

- 1.4 Heat treatment of milk: Holder and High Temperature Short Time (HTST), pasteurisation, sterilisation, Ultra Heat Treatment (UHT), sterilization, uperisation, homogenisation, vacuum pasteurisation and irradiation
- 1.5 Milking containers and packing: Tankers, cans, bottles and bottling, tetra-packs, polythene bags and bottles, transportation and storage of packed milk
- 1.6 Cleaning and sterilization of utensils and equipment
- 1.7 Testing and grading of milk:Olefactory, methylene blue, resazurin, clot on boiling, acidity, sedimentation, colony counts, microscope count, coliforms, pathogenic organisms, cell counts, specific gravity, Gerber and Babock tests, creamometer, gravimeter, Hortvet, phosphatase and turbidity tests
- 1.8 Milk products: Methods of manufacture, ingredients, nutritive value, defects, liability to carry infection, inspection and sampling of;
 - 1.8.1 Separated milk, cream, clotted cream, canned cream, whey, cheese, butter, ghee, buttermilk, fermented milk (yogurt), dried milk, evaporated and condensed milk, infant foods, reconstituted milk, ice cream, water ices and ice
 - 1.8.2 Layout and construction of factories and other premises relating to the above including equipment
 - 1.8.3 Manufacture of margarine and vegetable oil

2.0 Poultry, aquatic and other animals

- 2.1 Poultry: Anatomy and physiology, killing, dressing and packaging, diseases of poultry (fowl typhoid, salmonellosis, tuberculosis, bird influenza, pasteurellosis, newcastle and coccidiosis), inspection of poultry and slaughtering premises including game birds
- 2.2 Eggs: Composition and nutritive value (freshness and soundness including salmonellosis)
- 2.3 Rabbits and hares: Differential diagnosis of anatomy and physiology, common diseases and inspection
- 2.4 Game meat inspection: Diseases of game animals and inspection; game cropping
- 2.5 Fish and shellfish crustaceans: Anatomy and physiology, preservation, storage, transportation of fresh and frozen fish, retailing premises and inspection. Safety of fish and shellfish.
- 2.6 Meat and meat products:
 - 3.6.1 The significance of meat (beef, mutton, pork, poultry and game animals) in food control, their diseases and conditions dangerous to health; the importance of preventing cross contamination between raw and ready to eat foods

4.5 Food processing

- 3.2 Equipment: Used for various food processes
- 3.2 Technologies used in food processing: Brewing, milling, meat processing and meat products, confectionaries, tea and coffee production, bakery products and non alcoholic beverages

4.0 Food Hygiene and Inspection

- 4.1 Staff facilities: Cloakrooms; change rooms; toilet accommodation; washing facilities; and canteen
- 4.1 Primary food sources: Farming practices; use of insecticides and other agrochemicals on foods; use of antibiotics and hormones on livestock; farm dairies and milking techniques;

temperature control; safe transportation of foods; raw meat its inspection and prevention of cross contamination

- 4.2 Nutritional value of foods: Dietary requirements; nutritional values; preservation of nutritional values during harvesting, transportation, storage, preparation and cooking
- 4.3 Premises inspection: Field visits and compilation of reports on food premises including restaurant and hotel kitchens (With particular reference to international tourist hotels, hospitals and uplift meal kitchens for international aircraft), dairies, supermarkets, delicatessens, bakeries and confectioners, breweries, soft drink manufacturers, millers, grocers, greengrocers, caterers, outdoor catering, food stalls and markets, meat processing plants
- 4.4 Training and education: Programming courses for food handlers training; health education for the general public; the implementation and application of HACCP and other standards

5.0 Inspection of other foods

- 5.1 Meat products
- 5.2 Vegetables and fruits
- 5.3 Milk and milk products (composition, prevention of contamination, preservation, container and packaging)
- 5.4 Cereals and cereal products
- 5.5 Alcoholic, non-alcoholic beverages
- 5.6 Spices and herbs
- 5.7 Sauces and pickles
- 5.8 Condiments
- 5.9 Dried fruits and nuts
- 5.10 Confectionary
- 5.11 Food additives

6.0 Food Safety Law and International standards

- 6.1 Food and Drugs Act Cap 303 and regulations made there under
- 6.2 Public Health Act Cap 295 and regulations made there under
- 6.3 Local food laws – bye laws
- 6.4 International food laws and standards e.g. Codex, EU, FDA
- 6.5 Prosecution procedures

7.0 Practical food inspection

- 7.1 Conduct inspections on food premises and report on: Food markets; hotels; restaurants; dairies; bakeries; butcheries; cold rooms; tearooms; food processing plants; abattoir; bars and taverns
- 1.1 Visit to dairy farms, milk and milk product processing plants, dairy laboratory, milk shops and ice cream shops
- 1.2 Participate in the disposal of condemned foodstuff
- 1.3 Draw foodstuff samples and interpret results for bacteriological and chemical analysis
- 1.4 Identify diseases or types of defects on each of the following: Poultry, eggs, fish, game meat, canned foodstuff, cereals and vegetables
- 1.5 Investigate and report on complaints related to food

TEACHING METHODS:

1. Lectures
2. Group Discussions
3. Tutorials
4. Field demonstrations
5. Presentations

NOTIONAL HOURS: 150 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Seminar: 1 hour per week
4. Practical/lab work: 1 hour per week
5. Field work: 2 hours per week
6. Assessment and self-study: 3 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- | | |
|-------------------|-----|
| 1.1 2 Tests | 20% |
| 1.2 2 Assignments | 10% |
| 1.3 Practical | 10% |

2.0 Final Examinations 60%

- | | |
|---------------|-----|
| 2.1 Theory | 40% |
| 2.2 Practical | 20% |

PRESCRIBED READINGS

8. Sprenger, R. A. (2007). **Hygiene for management: A text for food hygiene courses.** 13th Edition. Highfield Co. publications Ltd. UK. ISBN 1 871912 660
9. Aston, G. and Tiffrey, J. (1997). **The essential guide to food hygiene and safety.** Eston house publication ISBN 09522633 1 9

RECOMMENDED READINGS

1. Hobbs, B. C. and Roberts, D. (1993). **Food poisoning and food hygiene.** London: Arnold
2. FAO/WHO (2001). **Food Standards Programme.** Codex Alimentarius – Food hygiene – Basic texts 2nd ed. FAO/WHO Publication, Rome, 70 p
3. Engel, D., Donald, D. M. and Nash, C. **Managing food safety.** CIEH Chadwick house Troup ISBN 1 902423 72 0

COURSE TITLE: MENTAL HEALTH**COURSE CODE: PHS 324****INTRODUCTION**

This course is designed to help students understand the social conditions that affect psychological well-being and to describe the process linking the social conditions to their psychological effects. Therefore, the theoretical foundations appropriate to the study of social effects on individual's psychological well-being forms the basis for helping the students understand psychiatry and mental health theory and concepts. The course also introduces students to the impacts of abuse of alcohol and other drugs on the human brain and mental health well-being

COURSE AIM

To equip students with socio-psychological perspectives and knowledge, skills and attitudes for handling mental health problems in community practice.

COURSE OBJECTIVES

1. Describe the basic psychological concept in relation to mental health
2. Describe the influence of cultural beliefs and practices human behaviour and health
3. Describe prevention strategies in community mental health care.
4. Discuss the concepts of normality and abnormality
5. Explain theories of aetiology of mental disorders
6. Describe common mental disorders
7. Diagnose and manage a patient with mental disorder
8. Discuss social perspectives of mental ill health
9. Describes the commonly abused substances in Zambia
10. Explain the effects of addiction
11. Describes the long term effects of excess consumption of alcohol and cannabis

COURSE LEARNING OUTCOMES

1. Apply concepts of psychology related to health and illness in meeting the needs of community members
2. Apply knowledge on psychology in the delivery of services to various members of the community
3. Identify psychological factors affecting medical condition
4. Apply interpersonal relationship concepts when working with communities
5. Demonstrates an understanding of social context and constructs of mental health and illness in practice
6. Recognise sociological influences on mental health and mental illness when dealing with mentally ill patients

7. Apply knowledge of sociological influences on mental health and mental illness in health the delivery of mental health services
8. Apply knowledge of sociological perspectives on health and illness when dealing with mental health associated stigma.
9. Apply the knowledge of influence and effects of mental illness on the family
10. Involve community institutions in the planning and delivery of mental health services
11. Work effectively with patient and family
12. Collaborate with family and other stakeholders in developing rehabilitation care plan.
13. Plan and implement relevant therapeutic interventions in meeting client's mental health needs.
14. Engage individuals, families and community organisations to promote mental health
15. Identify opportunities for advocacy, health promotion and disease prevention
16. Apply concepts of mental health and illness
17. Explain aetiology of mental health disorders
18. Classify mental health disorders and the diagnostic criteria
19. Explain the phenomenology and psychopathology of mental health disorders
20. Demonstrate skills and aspects required in conducting a diagnostic interview
21. Describe the clinical features and diagnosis of various mental disorders
22. Manage minor and major mental disorders using biopsychosocial model
23. Utilize the appropriate available level of facility in the referral systems
24. Conduct counselling and education to clients, patients and their families
25. Apply medical socio-psychological approaches to home visit and community based care
26. Explain the role of community health assistants in rehabilitation of patients/clients in the community
27. Demonstrate an understanding of planning for communities and populations
28. Co-ordinate rehabilitative services within multi-disciplinary teams, or organization and special interest groups involved in mental health care.
29. Uphold ethical theories in health care
30. Plan and implement management strategies of the immediate and long-term effects of alcohol and other abused drugs

COURSE CONTENT

1. Introduction to psychology

- 1.1 Concepts in psychology
- 1.2 Psychology and behaviour
- 1.3 Psychology in community mental health
- 1.4 Attitudes towards mental health
- 1.5 Interpersonal relationships in the community

2. Introduction to mental health and illness

- 2.1 Concepts in normality and abnormality
- 2.2 Causes of mental ill health
- 2.3 Signs and symptoms of minor and major mental illnesses
- 2.4 Psychiatric history taking

3. Mental disorders

- 3.1 Schizophrenia
- 3.2 Affective disorders
- 3.3 Anxiety disorders
- 3.4 Organic mental disorders
- 3.5 Alcohol and substance abuse
- 3.6 Mental health and HIV
- 3.7 Epilepsy

4. Management of mental disorders

- 4.1 Biological (Medicines)
- 4.2 Psychological (counselling)
- 4.3 Social (integration in community, home based care and home visits)

5. Concepts of community mental health

- 5.1 Multidisciplinary team management
 - 5.1.1 Public health care practitioners
 - 5.1.2 Nurses
 - 5.1.3 Clinical officers
 - 5.1.4 Community based organisations
 - 5.1.5 Community health assistants

6. Alcohol and other drugs

- 6.1 Introduction to alcohol other drugs
- 6.2 Theories of addiction
- 6.3 Commonly abused substances in Zambia
 - 6.3.1 Alcohol
 - 6.3.2 Cannabis (Marijuana), Heroin, Cocaine, Glue, Codeine, Tobacco, Ecstasy,

- 6.3.3 Prescribed drugs (Benzodiazepines: Diazepam, Lorazepam and Temazepam; Anti-parkinsonian: Benzhexol; ARVS: Efavirenz)

6.4 Drug abuse and the brain

- 6.4.1 Basic principles of drug and the brain
- 6.4.2 Effects of drug abuse
- 6.4.3 The immediate effect of alcohol and cannabis (intoxication)
- 6.4.4 The long-term effects of alcohol
- 6.4.5 Signs and symptoms of immediate and long-term effects

6.5 Management of the immediate and long-term effects of alcohol

- 6.5.1 Management of the immediate and long-term effects of other abused substances
- 6.5.2 Primary prevention
- 6.5.3 Secondary prevention
- 6.3.4 Tertiary prevention
- 6.5.4 Rehabilitation

6.6 Introduction to sociology in mental health

- 6.6.1 Concepts of sociology
- 6.4.2 Populations, society, community, culture, tradition, socialization, social systems
- 6.4.3 Health beliefs influence on mental health
- 6.4.4 Family and community
- 6.4.5 Social services
- 6.4.6 Prevention strategies

TEACHING METHODS

1. Lectures
2. Practical
3. Demonstrations
4. Field visits
5. Group discussions
6. Case studies

NOTIONAL HOURS: 100 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Seminar/Field visit: 2 hours per week
6. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- 1.1 2 Tests 30%
- 1.2 2 Assignment 10%

2.0 Final Examinations 60%

- 2.1 Theory 60%

PRESCRIBED READINGS

1. Alloy, L.B., Riskind, J.H. & Manos, M.J. (2014). **Abnormal Psychology current perspectives**, 9th Edition. Boston: McGraw-Hill.
2. Fieldman, R.S. 2013. **Understanding Psychology**, 11th Edition. New York. McGraw Hill
3. Kalat, J. W. 2011. **Introduction to Psychology**, 9th Edition. Philadelphia: Wadsworth Cengage Learning.
4. McClure, T (2011). **Interpersonal process in therapy**. 6thEd. An Integrated model, Australia: Cengage learning

RECOMMENDED READINGS

1. Edwards, C., Munro, J.F. & Broucher, I. 2010. **Davidsons Principles and Practice of Medicine**. 21st Edition. Edinburgh: Churchill Livingstone.
2. Katzung, B. G., Trevor A. J. & Masters, S.B. 2011. **Basic and Clinical Pharmacology**, 12th Edition. Los Altos: Lange Medical Publications.
3. Stahl, S. M. 2013. **Stahl's Essential Psychopharmacology: Neuro-scientific Basis and Practical Applications**, 4th Edition. Cambridge: Cambridge University Press.
4. Woodrow, R., Colbert, D. J. & Smith D. M. 2011. **Essential Pharmacology for Health Professionals**, 6th Edition. New York: Delmar
5. American Psychiatric Association. 2013. **Diagnostic and Statistical Manual of Mental Disorders**, 5th Edition. Washington, DC: American Psychiatric Association Press.
6. Andreasen N. C. & Black, D. W. Eds. (2010) **Introductory Textbook of Psychiatry**. New York: American Psychiatric Publication.
7. Horton-Szar, D. & Hall, J. (2013). **Crash course: Psychiatry**. 4th Ed. Mosby Elsevier
8. Morrison-Valfre, M. 2013. **Foundations of Mental Health Care**, 5th Edition. New York: Mosby

COURSE TITLE: EVIDENCE BASED PRACTICE IN PUBLIC HEALTH

COURSE CODE: EHS 325

INTRODUCTION

The course is designed to prepare students on "Evidence-based Policy and Practice" explores the processes of systematically finding, appraising and using scientific research as the basis for developing sound practices. The knowledge gained from the research is used to develop policies and practices that improve health outcomes and performance as well as allowing for more efficient use of resources. Policy makers are also provided with a better understanding of the science, ensuring that policy decisions are based on the best information available

COURSE AIM

To enable students acquire knowledge and skills in collecting evidence on which one's practice is based; determine the soundness of the evidence, and the strength of inference the evidence permits; weigh the relevance and applicability of the evidence to the public health situation thereby drawing a balanced the conclusion to the problem at hand for decision making

COURSE OBJECTIVES

1. Define evidence based practice
2. Explain importance of collaborative partnerships between researchers and practitioners when designing, implementing, and evaluating evidence-based programs and policies
3. Describe the process of preparing an application for funding including an outline of the steps involved in the application process
4. Discuss the process of conducting evidence-based practice in Public Health
5. Elucidate the operationalisation of research designs in evidence based practice
6. Explain the significance of using economic data and strategies to evaluate costs and outcomes when making public health decisions.
7. Describe the Fundamentals of Program Evaluation
8. Explain the process of conducting Community Health Impact Assessment
9. Outline the rationale, uses, and usefulness of systematic reviews that document effective interventions

COURSE LEARNING OUTCOMES

1. Demonstrate the understanding of obtaining community input before planning and implementing evidence-based interventions.
2. Engage the community in making assessments and decision making;
3. Correctly define the health issue according to the needs and assets of the population or community of interest
4. Demonstrate the importance of strong leadership from public health professionals regarding the need and importance of evidence-based public health interventions.
5. Recognize the importance of translating evidence-based interventions to unique 'real world' settings.
6. Recognize the importance of translating the impacts of programs or policies in language that can be understood by communities, practice sectors and policy makers.
7. Demonstrate the ability to prepare an application for funding including an outline of the steps involved in the application process.

8. Recognize the importance of using economic data and strategies to evaluate costs and outcomes when making public health decisions.
9. Demonstrate the understanding of the significance of coming up with creative ways of transmitting what is known to work (evidence-based interventions) to policy makers in order to gain interest, political support and funding.
10. Demonstrate the understanding of rationale, uses, and usefulness of systematic reviews that document effective interventions.
13. Comprehend the various designs useful in program evaluation with a particular focus on quasi-experimental (non-randomized) designs.
14. Synthesize scientific skills, effective communication, common sense, and political acumen in making decisions.

COURSE CONTENT

1.0 Introduction to Evidence Public Health Practice

- 1.1 What is “evidence-based” public health practice?
- 1.2 Why focus on evidence-based decision making in health promotion and disease prevention practice?
- 1.3 How is “evidence” defined and evaluated within a public health context?
- 1.7 Tradeoffs between internal and external validity
- 1.8 Systematic reviews and guideline development
- 1.9 Integrating the Existing Science into Implementation Processes
- 1.10 What challenges exist in compiling evidence for public health practice?
- 1.11 Addressing the complexity and interdisciplinary nature of public health interventions
- 1.12 Taking action in the face of evidence gaps and generating relevant evidence
- 1.13 Health impact assessment (HIA)—a tool for modeling health impact outside the health sector
- 1.14 Other existing resources for identifying evidence-based and best practices in public health?

2.0 Introduction to Public Health History

- 2.1 Course Overview
- 2.2 Public Health History, Structure, and Core Functions
- 2.3 Issues in Public Health (identifying public health issues)
- 1.4 Public Health and Health Care Connections

3.0 Scientific Elements

- 3.1 Thinking Scientifically
- 3.2 Ethical Issues and Public Health
- 3.3 Inductive / Deductive Reasoning
- 3.4 Basic Scientific Measurement: Concepts and Resources

4.0 The Process of Evidence-Based Practice in Public Health

- 4.1 Study Designs – Process, Output, Outcome, Impact
- 4.2 Study Designs – Internal / External Validity, Critical Assessment
- 4.3 Translational Research Applications

5.0 Accessing Evidence-Based Strategies & Interventions in Public Health

- 6.0 Adapting Evidence-Based Strategies to suit your setting and context
- 7.0 The Ethics and Politics of Research
- 8.0 Accessing the literature and Introduction to Literature Reviews and data access
- 9.0 An Introduction to Inquiry
- 10.0 Paradigm, Theory and Social Research
- 11.0 Structuring Inquiry: Research Design
- 12.0 Survey Research
- 13.0 Qualitative Research: Methods
- 14.0 Qualitative Research: Analysis
- 11.0 Elementary Quantitative Analysis
- 12.0 Introduction to Community Health Assessment
- 13.0 Community-Engaged Research

- 14.0 Criteria for Selecting Interventions
- 15.0 Fundamentals of Program Evaluation
- 16.0 Funding Research: The Basics of Grant Writing

TEACHING METHODS

- 1. Lectures
- 2. Tutorials
- 3. Group discussions
- 4. Field visits
- 5. Demonstrations
- 6. Presentations

NOTIONAL HOURS: 100 HOURS

- 1. Lectures: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Seminar: 1 hour per week
- 5. Field work: 2 hours per week
- 6. Assessment and self-study: 1 hour per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- 1.1 2 Tests 30%
- 1.2 2 Assignments 10%

2.0 Final Examinations 60%

- 2.1 Theory 60%

PRESCRIBED READINGS

- 1. Brownson, R. C., Fielding, J.E., Maylahn, C.M. (2009). **Evidence-based public health: A fundamental concept for public health practice. Annual Review of Public Health; 30: 175-201.**

RECOMMENDED READINGS

- 1. Guyatt, G. and Drummond, R. (2002). **User's Guides to the Medical Literature: A Manual for Evidence-Based Practice.** Chicago: American Medical Association

COURSE TITLE: RESEACH PROJECT I - RESEARCH PROTOCOL DEVELOPMENT

COURSE CODE: EHS 326

INTRODUCTION

Health research is a systematic and principled way of obtaining evidence (data, information) for solving health care problems and investigating health issues. Therefore, the topic for the research project is selected by the student. The primary aim of this course is to enable the student identify the research topic of his/her choice. The project therefore may involve: desk study and/or library research, design, construction, testing and/or management, laboratory investigation, fieldwork, analysis, design.

With the help of the supervisor, the student shall be required to write a research proposal which will be presented to the team of evaluators/examiners before it is finally approved. Once the research protocol is approved by the Harvest University Research Ethics Committee, the student shall proceed to collect data from the field

COURSE AIM

The course aims at enabling the student identify the project of his/her choice and with the help of the supervisor write the research proposal in accordance with the principles of research protocol development.

COURSE OBJECTIVES

1. Identify a research project in Public Health relevance in the following themes: Pollution, Occupation health and safety, community health, built environment and food safety or in any other health related field
2. Apply the principles of research protocol development

COURSE LEARNING OUTCOMES

1. Identify a problem that is researchable
2. Appropriately write up Research Protocol
3. Present the research proposal to the examiners

NOTIONAL HOURS: 60 HOURS

1. Assessment and self-study (Research protocol development: 4 hours per week

ASSESSMENT METHODS

1. **Research Protocol Development**

YEAR FOUR SEMESTER ONE

Course Codes	Course Titles
PHS 411	Epidemiology and Demography in Public Health
PHS 412	Public Health Informatics and Health Management Systems
PHS 413	Principles of Occupational Health and Safety
PHS 414	Geographical Information System and Remote Sensing in Public Health
PHS 415	Research Project II
PHS 416	Industrial Training II

COURSE TITLE: EPIDEMIOLOGY AND DEMOGRAPHY IN PUBLIC HEALTH

COURSE CODE: PHS 411

INTRODUCTION

The course is designed to prepare students with appropriate knowledge and skills on basic principles of demography and its influence on population dynamics. Further the course brings out epidemiology principles, concepts, and procedures useful in the surveillance and investigation of health-related events that will be used for directing public health action.

COURSE AIM

To enable students acquire knowledge and skills in the use of demographic and epidemiological techniques and data to enable them describe and evaluate the health characteristics of a given population in identifying determinants of population health, investigation and control of disease outbreaks, study of environmental and industrial hazards, evaluation of preventive or curative programs or treatments, and evaluation of the effectiveness and efficiency of intervention or control strategies.

COURSE OBJECTIVES:

1. Define concepts of population dynamics and demographic changes
2. Describe principles of epidemiology and their relevance in the control of diseases
3. Describe disease transmission and its dynamics
4. Explain the impact of disease outbreak on high population density

COURSE LEARNING OUTCOMES:

1. Apply demographic and epidemiological principles in making decision in public health
2. Use demographic data to analyse the epidemiological trend of any outbreak of disease or natural disaster
3. Calculate and present epidemiologic data, synthesize and interpret study results.

COURSE CONTENT

UNIT ONE: PRINCIPLES OF EPIDEMIOLOGY

1. Descriptive epidemiology:

- 1.1 Person, Time and Place;
- 1.2 Counts, ratios, proportions and rates;
- 1.3 Incidence measures; and
- 1.4 Prevalence measures

2. Analytic epidemiology:

- 2.1 Hypothesis formulation in epidemiologic studies;
- 2.2 Measures of effect (odds ratio, risk ratio, etc); and
- 2.3 Statistical parameters in epidemiologic studies.

3. Evaluating associations:

- 3.1 Concepts of statistical associations;
- 3.2 Chance, bias and confounding; and
- 3.3 Validity

4. Types of study designs:

- 4.1 Cross sectional studies;
- 4.2 Cohort studies;
- 4.3 Case control studies; and
- 4.4 Experimental studies.

5. Infectious disease epidemiology:

- 5.1 Definitions used in infectious disease epidemiology;
- 5.2 Disease transmission and its dynamics; and
- 5.3 Outbreak investigations

6. Measures of public health importance:

- 6.1 Attributable risk; Relative risk; and
- 6.2 Disease prevention and control

7. Screening:

- 7.1 Characteristics of diseases appropriate for screening;
- 7.2 Role of screening in the secondary prevention of disease; and
- 7.3 Measures of the validity of a screening test (sensitivity and specificity).

8. Field investigations: epidemiology in action

9. Surveillance

10. Student project and report writing

UNIT TWO: DEMOGRAPHY

- 1.0 Introduction to Demography
- 1.1 Definition of demography
- 1.2 Types of demographic data
 - 1.2.1 According to what was measured
 - 1.2.2 According to mechanism of data collection
- 1.3 The basic demographic equation
- 1.4 Age and sex structure
- 1.5 Population pyramids
- 1.6 The epidemiologic transition theories
- 1.7 Fertility and population increase
- 1.8 Stable population
- 2.0 Influence of socio-economic variables on fertility**
- 3.0 Effects of urbanization and globalization on demography**
- 4.0 Demographic transition theories**

TEACHING METHODS

- 1. Lectures
- 2. Practical
- 3. Demonstrations
- 4. Field visits
- 5. Group discussions
- 6. Case studies

NOTIONAL HOURS: 120 HOURS

- 1. Lectures: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Seminar: 3 hours per week
- 4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment	40 %
1.1 2 Tests	30%
1.2 2 Assignments	10%
2.0 Final Examinations	60%
2.1 Theory	60%

PRESCRIBED READINGS

- 1. Rothman, K. J. (2002). **Epidemiology: An introduction**. Oxford University press
- 2. Brownson, R. C. and Petitti (2006). **Applied Epidemiology- theory to practice**. Oxford university press.
- 3. Hinde Andrew. 2001. **Demographic Methods** (First Edition). ISBN: 0-340 71892 7

RECOMMENDED READINGS

1. Park, K. 2010. **Preventive and Social Medicine**. Eighteenth Edition. ISBN: 1-872807-86-0.
2. Hinde Andrew. 2001. **Demographic Methods**. First Edition. ISBN: 0-340 71892 7
3. Farmer, R. et al. (1996). **Epidemiology and Public Health Medicine**. 4th Edition. Blackwell, London, UK. ISBN 0-86542-611-2

COURSE NAME: PUBLIC HEALTH INFORMATICS AND HEALTH MANAGEMENT INFORMATION SYSTEM

COURSE CODE: PHS 412

INTRODUCTION

The course is designed to introduce students to the systematic application of information and computer science and technology in public health practice, research and learning in various areas, including surveillance, reporting and health promotion

COURSE AIM

To equip students with knowledge and skills in data handling, analysis, interpretation and presentation for delivery of quality health services

COURSE OBJECTIVES

1. Equip the student with background knowledge of information management in the health sector.
2. Discuss the various principles of data collection
3. Describe tools used at each stage of the information cycle in collecting quality data.
4. Illustrate various ways in which data can be produced and processed
5. Describe ways in which quality data can be assured
6. Discuss data security and personal health information
7. Equip the student with background knowledge and skills of data analysis
8. Equip the learner with knowledge and skills of presenting data using various methods according to the nature of the data
9. Equip learners with skills of interpreting information effectively
10. Discuss data submission in context with feedback mechanisms.
11. Enable learners to demonstrate the ability to set realistic goals, objectives and targets in the management and planning/decision making, the implementation, monitoring and evaluation of operational plans.
12. Describe SmartCare application as a tool for generating reports, produce graphs and maps
13. Equip the learners with knowledge of interpreting laws and regulations related to health information management.

COURSE LEARNING OUTCOMES

1. Apply principles of information management at any level.
2. Use appropriate tools for data collection in the information cycle.
3. Demonstrate methods of data collation and processing.
4. Identify appropriate indicators for each programme
5. Use indicators in the planning cycle and epidemiological studies
6. Apply standard formulas for data analysis and Interpret data correctly for decision making processes.
7. Utilizes appropriate performance indicators for measuring staff work performance/and or self-assessment.
8. Prepare reports based on data collected
9. Present data using various methods according to the nature of the data
10. Use SmartCare for in-putting the collected data

11. Implement security measures for authority of access to data
12. Employ regulations on access and disclosure of personal health information in a health facility.
13. Monitor the operationalization of set goals, objectives and targets in the management and planning/decision making
14. Evaluate from time to time the set goals, objectives and targets in the management and planning/decision making
15. Demonstrate the ability to set realistic goals, objectives and targets in the management and planning/decision making, the implementation, monitoring and evaluation of operational plans.
16. Develop action plan based on health information
17. Apply tools used at each stage of the information cycle in collecting quality data.
18. Operate SmartCare system to improve the quality of health services.

COURSE CONTENT

1.0 Introduction to HMIS/DHIS

- 1.1 Definition of terms
- 1.2 Introduction to Health Management Information system
- 1.3 Zambia Health Information System (HMIS) Health information
- 1.4 District Health information System design and principles
- 1.5 Information use in Community diagnosis

2.0 Data Production

- 2.1 Data collection
- 2.2 Introduction to the principles of Information
- 2.3 The Six 'Ws' principles of data collection The Information cycle

3.0 Use of data collection tools

- 3.1 Data definitions
- 3.2 Sources of data
- 3.3 Types of HMIS tools and their purposes
- 3.4 The Information Cycle: Core elements and linkages
- 3.5 Tools and outputs of each element/stage
- 3.6 Data sets for health facility
- 3.7 Essential data sets
- 3.8 Information Pyramid

4.0 Data production and processing

- 4.1 Introduction
- 4.2 Aggregation of data
- 4.3 Conditions for efficient and correct data collection
- 4.4 Roles and responsibilities of health worker in data collection and processing
- 4.5 Data flow policy
- 4.6 Use of lifelong records.

2.0 Data quality

- 5.1 Definition of quality
- 5.2 Importance of good data quality (3 Cs)
- 5.3 Legal and professional ethical requirements
- 5.4 Standards and standard operating procedures
- 5.5 Mechanisms for assessing data quality (Validations).
- 5.6 Assessment of data quality in health facilities
- 5.7 Supervisory roles in data quality
- 5.8 Common problems with data quality.
- 5.9 Typical problems in work environment and workflow actions to common problems

6.0 Data Security, Legal and Ethical Aspects

- 6.1 Security measures for authority of access
- 6.2 Prevention of destruction of data, (i.e. by moisture, insects, computer viruses, destruction of digital media,) or incompatibility of old and new computer systems.

6.3 Storage

6.3.1 Privacy protection/Confidentiality

6.3.2 Timeliness for archiving and retrieval of health data (HMIS data / Health records, Signature lists, etc)

7.0 Data Analysis

7.1 Introduction to data analysis

7.2 Terms used in data analyses: Meaning and use

7.3 Indicator concepts

7.3.1 Ideal indicators (RAVES)

7.3.2 Types of indicators (Qualitative and Quantitative)

7.4 Epidemiological concepts in data analyses

7.5 Measurement and calculation formulas

7.6 Formulation of indicators for specific programs

7.7 The risks of data manipulation

8.0 Presentation of data

8.1 Rationale for appropriate presentation of data

8.2 Presentation of data in simple tables

8.3 Types of graphs to present various types of data

8.4 Design of appropriate graphs for display of data

8.5 Practicals on generation of various data presentation graphs

9.0 Interpretation of information

9.1 Data handling processes for interpretation.

9.2 Factors influencing the interpretation of information

9.3 Preparation for interpretation: Essential ingredients

9.4 Interpretation as a tool in decision-making

10.0 Feedback on data

10.1 Rationale for feedback.

10.2 Mechanisms for giving and receiving feedback: CRISP

10.3 Data flow policy and feedback mechanism

10.4 Strategies for appropriate feedback

10.5 Presentation of benchmark results

10.6 Feedback and staff motivation

11.0 Information use

11.1 Types of action plans in the health sector

11.2 Elements of action plans

11.3 Planning and management:

11.4 Baseline surveys

11.5 Indicators as link between planning and Planning cycle

11.6 Monitoring & Evaluation

11.6.1 Definitions

- 11.6.2 Types of monitoring
- 11.6.3 Types of evaluation
- 11.6.4 Importance of M & E in Project management/cycle

UNIT TWO: PUBLIC HEALTH INFORMATICS (SMARTCARE)

- 1.0 Introduction to SmartCare
- 1.1 Definition of terms - Concepts and categories of informatics; and Basic informatics principles
- 1.2 Equipment used in SmartCare
- 1.3 Security system
- 1.4 Understanding clients records/personal health information
- 1.5 SmartCare services and running reports

- 2.0 Foundation of health information system
- 2.1 The information system architecture in public health
- 2.2 Structure and model
- 2.3 Essential information skills and abilities
- 2.4 Security and confidentiality issues and the future of health care and informatics
- 2.5 Computer-based health information systems
- 2.6 Decision Support Systems and information retrieval systems
- 2.7 Advantages, capabilities and limitations of information technologies when applied to health

- 3.0 Computer mediated Health Education and Health Promotion**
- 4.0 Applications of Public Health Informatics**
- 4.1 Introduction to data base management
- 4.1.1 Creation, updating and data formation; and Access, CSPRO and EPI DATA
- 4.2 Introduction to computer based statistical analytical tools using SPSS:

- 5.0 Legal Requirements**
- 5.1 Public Health Act Sec. 9 and 10
- 5.2 ICT policy (2009)

MATERIALS /EQUIPMENT

- 1. Computers
- 2. Calculators

TEACHING METHODS

- 1 Lectures
- 2. Practical
- 3. Demonstrations
- 4. Field visits
- 5. Group discussions

NOTIONAL HOURS: 150 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 2 hours per week
3. Seminar: 1 hour per week
4. Field work: 3 hours per week
5. Assessment and self-study: 3 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment	40 %
1.1 2 Tests	20%
1.2 2 Assignments	10%
1.3 Practical (computer lab)	10%
2.0 Final Examinations	60%
2.1 Theory	60%

PRESCRIBED READINGS

1. Heywood, A. and Rohde, J. (2003). **Using Information for Action: A manual for Health Workers at facility level, Equity Project.** Cape Town: Belleville
2. Ministry of Health (2008). **HMIS Procedures Manual.** Lusaka: MoH publications
3. Ministry of Health (2007). **DHIS 1.4 Operations Manual.** Lusaka: MoH publications
4. Coiera, E. (2003). **Guide to health informatics.** 2nd edition. Arnold publisher

RECOMMENDED READINGS

1. World Health Organization (2004). **Developing Health Management Information Systems: A practical guide for developing countries.** Geneva: WHO Press
2. Glaser, J.P., Lee, F.W., and Wager, K.A. (2013). **Health care information systems: a practical approach for health care management.** San Francisco: Jossey-Bass
3. SmartCare Job Aids (2013). **Introduction to SmartCare.** Lusaka: JHPIEGO.
4. Shortliffe, T. (2001). **Medical informatics: Computer applications in healthcare and Biomedicine.** Springer –Verlag Publishers

COURSE TITLE: PRINCIPLES OF OCCUPATIONAL HEALTH AND SAFETY

COURSE CODE: EHS 413

INTRODUCTION

Occupational Health is a multidisciplinary activity, which seeks to protect and promote the health of workers by preventing and controlling occupational diseases and accidents. Occupational Hygiene and Ergonomics enhance one's ability to anticipate, recognise, rationally evaluate the risk and control the health hazards in a working environment

COURSE AIM

To provide an understanding of Occupational Health and Safety, embracing concepts of Occupational Hygiene and Ergonomics

COURSE OBJECTIVES

1. Describe the principles of occupational health and safety
2. Describe the concepts occupational hygiene and ergonomics
3. Outline health effects that result from particular tasks
4. Understand toxicological effects of environmental harmful chemicals and toxins
5. Interpret international threshold limit values
6. Assess adequacy of ventilation systems and their application
7. Explain illumination requirements for industry
8. Identify radiation hazards and their control

COURSE LEARNING OUTCOMES

1. Use varying hazard recognition techniques
2. Identify the range of health hazards encountered in the workplace
3. Identify sources and potential routes of exposure
4. Utilise international guidelines in managing Occupational health and Safety
5. Manage occupational hygiene programmes
6. Manage safe working systems
7. Influence workplace designs

COURSE CONTENT

1.0 General principles of occupational health and safety

- 1.1. Historical background
- 1.2. Scope, aim and objectives
- 1.3. Introduction to industrial set-up, structure and function of industry
- 1.4. Overview of occupational health services
- 1.5. Industrial labour policies
- 1.6. Government organisation
- 1.7. ILO convention and recommendations
- 1.8. International standards
- 1.9. Occupational health information - including library facilities and Internet.

2. Applied physiology in occupational health and safety

- 2.1 Body temperature regulation
- 2.2 Indices of heat stress

3. Factors in heat tolerance

- 3.1. Measurements of thermal environment
- 3.2. Health effects of climatically factors

4. Occupational Hygiene

- 4.1. General principles of occupational hygiene
- 4.2. Classification of occupational hazards: Chemical hazards; biological hazards; physical hazards; psychosocial hazards; stress and hypertension; heavy metals (lead, mercury, uranium) and non-metals
- 4.3. Hazardous dusts: Definition, particle size, form and structural properties, physical characteristics, terminal settling velocity (Stoke's law), Brownian movement and diffusion, electrostatic forces, flocculation of dust particles, impingement of dust particles; deposition of inhaled dust and health effects

5. Toxicology and Chemical Safety

5.1 General principles of toxicology Origin and scope of toxicology;

- 5.1.1 Dose response relationship
- 5.1.2 Routes of exposure; absorption; distribution and excretion of toxicants
- 5.1.3 Bio-transformation of toxic substances and factors influencing toxicology

5.2 Classification of hazardous substances

- 5.2.1 Physical, chemical, biological and physiological classification
- 5.2.2 Pesticides and persistent organic pollutants (POPs) [Aldrin, Chlordane, Dichlorodiphenyltrichloroethane (DDT), Dieldrin, Endrin, Heptachlor, Hexachlorobenzene (BHC), Merer, Toxaphene, Dioxin, Furan and Polychlorinated biphenyl (PCB)]
- 5.2.3 Industrial solvents
- 5.2.4 Metals
- 5.2.5 Food-borne toxicants; toxins of animal origin
- 5.2.6 Phytotoxins and social toxins

5.3 Health effects of toxins: Acute, chronic, cancer, mutations, birth effects, and reproductive toxicity

6. Principles of controlling chemical hazards

6.1 Introduction

6.1.1 Elimination: Hazards process or specific hazards process

6.2. Stopping production

6.3. Substitution: Process, equipment, materials

6.4. Isolation: Process, Material, Worker

6.5. Enclosure: Process, machinery

6.6. Ventilation: Local exhausts and supply

6.7. General exhaust and supply

6.8. Personal and general hygiene

6.9. Personal protection General philosophy

6.10 Protection against inhalation of hazards

6.11 General principles of assessing chemical hazards (dust, gases, vapours and control devices)

6.12 Safety programme for industry (education, managers, engineers, supervisors, workers)

7.0 Threshold Limit Values

7.5 Definition of threshold limits values (TLV)

7.2 Documentation of TLV (Guidelines made by American Conference of Government Industrial Hygiene – ACGIH)

7.6 Time weighted average threshold limits (TWA – TLV)

7.7 Short term exposure limits (STEL – TLV), definition and use

7.8 Threshold limit value for mixture

7.9 Biological threshold limit value

7.10 Environmental threshold limit values

8 Principles of industrial ventilation

8.1 Introduction

8.2 Classification of ventilation systems

8.3 Particles of airborne materials

8.4 Application of dilution ventilation

8.5 Make-up air (Replacement of air)

8.6 Air moving devices (fans and selection)

8.7 Equipment for measuring airflow

8.8 Maintenance of air conditioning system

9 Industrial illumination

9.1 Introduction

9.2 Lighting terminology (Intensity, lux, illumination level, luminance, reflectance, light fittings)

9.3 Purpose of lighting -lighting for task performance

9.4 Illumination requirements for industry

9.5 Industrial lighting equipment

9.6 Lighting design

9.7 Lighting surveys

9.8 National and international standards

10.0 Radiation

- 10.1 Introduction to non- ionising radiation
- 10.2 Ultraviolet radiation (UV)
- 10.3 Laser radiation
- 10.4 Microwave radiation
- 10.5 Hazard identification and control
- 10.6 Introduction to ionising radiation
- 10.6 Quantities and units
- 10.7 Categories of radiation exposure
- 10.8 Biological aspects of radiation
- 10.9 Radiation protection
- 10.10 Occupational
- 10.11 National and international standards

11.0 Ergonomics and biomechanics

- 11.1 The anatomy of function
- 11.2 Anthropometrical
- 11.3 Work tolerance
- 11.4 Manual handling
- 11.5 Work positions
- 11.6 Repetitive work
- 11.7 Ergonomic and biomechanical evaluation
- 11.8 National and international standards

12.0 Noise hazards and control

- 12.1 Definition of sound and noise and basic terminology
- 12.2 Physiology of hearing
- 12.3 Sound levels of some noise sources found in different environments
- 12.4 Combination of sound sources
- 12.5 Perception of noise
- 12.6 Health effects of noise
- 12.7 Noise measurement and acceptability criteria
- 12.8 Noise control: Plant planning, substitution, modification, and personal protection)
- 12.9 National and international standards

13.0 Vibration hazards and control

- 13.1 Introduction to vibration
- 13.2 Characteristics of vibrations
- 13.3 Health effects of vibration
- 13.5 Industries affected
- 13.6 Exposure criteria
- 13.7 Measurement Control
- 13.8 National and international standards

14.0 Case studies

- 14.1 Carryout case study in any of the following areas
- 14.2 Comprehensive risk assessment on a chosen workshop, process or industry
- 14.3 Sampling strategy: Draw up a realistic sampling strategy or program and draw sampling procedure for two of the hazards or stresses
- 14.4 Devise a practical occupational health and safety management system for an organisation. This should include steps to control the hazards or stresses

TEACHING METHODS

1. Lectures
2. Group Discussions
3. Practical
4. Demonstrations and Fieldwork
5. Individual student presentations

NOTIONAL HOURS: 150 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Practical/lab work: 2 hours per week
4. Field work: 1 hour per week
5. Assessment and self-study: 1 hour per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- | | |
|-------------------|-----|
| 1.1 2 Tests | 20% |
| 1.2 2 Assignments | 10% |
| 1.2.3 Practical | 10% |

2.0 Final Examinations 60%

- | | |
|---------------|-----|
| 2.1 Theory | 40% |
| 2.2 Practical | 20% |

PRESCRIBED READINGS

1. Guild, R. et al editors (2001). **Handbook of occupational health practice in the South African mining industry**. SIMRAC. Johannesburg. ISBN 1 – 919853 – 02 – 2
2. Stranks, J.W. (1996). **ROSPA The handbook of health and safety practice**. 4th Edition. Financial Times Publication.

RECOMMENDED READINGS

1. ILO. (1998). **Work organization and Ergonomics**. Geneva: Martino, V. D. and Corlett Edts. ILO. (1997). **Hazards at work. Trade Union Congress guide in health and safety**. London and Welshpool: Macdermott and Chant ltd.. ISBN 1 – 85006 – 158 – 0
2. ILO. (1999). **International labour standards concerned with labour inspection main provisions**. Geneva. ISBN 92 – 2 – 106753 – X and ISBN 92 – 2 306753 – X
3. ILO. (1996). **Ergonomics checklists practical and easy-to-implement solutions for improving safety, health and working conditions**. Geneva. ISBN 92 – 2 109442 – 1

COURSE TITLE: GEOGRAPHICAL INFORMATION SYSTEM AND REMOTE SENSING IN PUBLIC HEALTH

COURSE CODE: EHS 414

INTRODUCTION

The course provides students with an introduction to this exciting and expanding field of inquiry. Geographic information systems (GIS) have emerged as an important method for performing public and environmental health analyses. GIS is generally seen as a spatial analysis system for the organization, storage, retrieval and analysis of data for which the location and other spatial attributes are considered important (e.g., incidence of a specific disease condition in relation to a pollution source). Students will develop a strong understanding of the tools and techniques used to display, process, and analyze remotely sensed data.

COURSE AIM

The course aims at equipping students with basic practical skill applications of fundamental remotely sensed data, geographic and cartographic concepts that underlie GIS and be able to apply any of the following assessment methods: quantitative risk assessment; burden of disease using disability-adjusted life years; spatial analysis and geographic information systems; health impact assessment; alternatives assessment.

COURSE OBJECTIVES

1. Explain the fundamental geographic and cartographic concepts and principles that underlie GIS
2. Demonstrate the understanding and working knowledge of Arc GIS, a powerful “desktop” GIS software package that runs in a Windows environment.
3. Explain the knowledge of past, present, and possible future applications of GIS for public health and environmental studies
4. Describe the ethical, political, organizational, and economic issues related to GIS
5. Describe the basic principles of remote sensing
6. Explain the remote sensing workflow
7. Analyze remotely sensed data using the principles of the remote sensing workflow

COURSE LEARNING OUTCOMES

1. Use computer systems and analytic software packages: desktop GIS software packages including Arc GIS and other spatial analysis software such as GWR, GeoDa, and SaTScan.
2. Identify areas of uncertainty in exposure and risk assessment processes.
3. Retrieve and organize literature; synthesize and critically evaluate scientific literature in public health and other relevant fields.
4. Use existing databases to provide background information or data to address research questions and draw appropriate inferences/estimates from Public health data.
5. Evaluate seminars and presentations in Public health and distil the critical and salient issues from them.

6. Produce working tables, statistical summaries, and effective figures to summarize data.
7. Prepare presentation materials including outlines, posters, and PowerPoint presentations.
8. Deliver effective oral presentations individually and as part of a team.
9. Develop multi-step remote sensing workflows to solve problems in a variety of application areas;
10. Apply acquired knowledge and critical thinking skills to solve a real-world problem with appropriate remote sensing data and processing methods.
11. Clearly and concisely communicate findings from the analysis of remotely sensed data through the written word and graphical products

COURSE CONTENT

1.0 Introduction to GIS Concepts and Methods

1.1 GIS and Public Health

- 1.1.1 Overview of Applications
- 1.1.2 GIS Mapping as a Public Health Tool
- 1.1.3 Public Participation GIS and Health

1.2 GIS and Spatial Data

1.3 Spatial Databases for Public Health

1.4 Basic Spatial Analysis for Cluster Pattern and Cluster Detection

1.5 Introduction to Labs Structure and Place as Determinant of Health

1.6 Mapping Disease and Health: Past and present (Lab work)

- 1.6.1. GIS Background and Arc GIS
- 1.6.2 Analysing Spatial Clustering of Health Events

1.7 Environmental Hazards

- 1.7.1 Analysing risks
- 1.7.2 Spread of infectious diseases
- 1.7.3 Responding to disease outbreaks and epidemics (interactive maps analysis and communication during outbreaks)

1.8 Disease Diffusion

1.9 Analysing Access to Health Services

- 1.9.1 Spatial Analysis for Public Health
- 1.9.2 Locating Health Services
- 1.9.3 Health Disparities

1.10 Case Studies: Studying food borne disease outbreaks;

1.11 Spatial Statistics for Public Health:

- 1.11.1 Neighbourhood and Health
- 1.11.2 GIS and Community Health
- 1.11.1 Prevalence estimates and spatial statistics

1.12 Data structure and projects

- 1.12.1 Ecology of Vector-Borne Disease; Analysing Access to Health Services

1.13 Data management and tables with Geocoding

1.14 Global Positioning System (GPS) and Digital Data

2.0 Introduction to Remote Sensing

2.1 The Remote Sensing Analytical Process

- 2.1.1 Principles of Remote Sensing
- 2.1.2 Remote sensing workflow
- 2.1.3 Analysis of remotely sensed data using principles of remote sensing workflow

2.1 Pre-processing of Remotely Sensed Data

- 2.2.1 Spatial preprocessing techniques to image data
- 2.2.2 Spectral preprocessing techniques to image data
- 2.2.3 Manage image data using mosaics and compression
- 2.2.4 Create surface models from lidar data

2.3 Image Interpretation

- 2.3.1 Define the elements of image interpretation
- 2.3.2 Interpret remotely sensed data using the elements of image interpretation
- 2.3.3 Construct an image interpretation key

2.4 Feature Extraction

- 2.4.1 Pixel and object-based approaches to feature extraction
- 2.4.2 Supervised and unsupervised approaches to feature extraction
- 2.4.3 Classification using spectral information
- 2.4.4 Classification using geometric information
- 2.4.5 Classification using texture information

2.5 Change Detection

- 2.5.1 Detect thematic change over time from two dates of multispectral imagery
- 2.5.2 Detect thematic change over time using lidar data
- 2.5.3 Detect thematic change from radar data using coherent change detection techniques

2.6 Accuracy Assessment

- 2.6.1 Principles of classification accuracy assessment
- 2.6.2 Construct an accuracy assessment error matrix;
- 2.6.3 Principles of classification accuracy assessment in a typical application setting;
- 2.6.4 Design and deploy a workflow for mapping an urban heat island;
- 2.6.5 Detect thematic change over time from two dates of multispectral imagery;
- 2.6.6 Detect thematic change from radar data using coherent change detection techniques;
- 2.6.7 Formulate an integrated workflow for mapping inundation areas.

3.0 Project Assignment in GIS

TEACHING METHODS

1. Lectures
2. Practical
3. Demonstrations

NOTIONAL HOURS: 120 HOURS

1. Lectures: 3 hours per week
2. Tutorial: 1 hour per week
3. Practical/lab work: 2 hours per week
4. Field work: 1 hour per week
5. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment: 50%

- 1.1 2 Tests: 10%
- 1.2 2 Assignments: 10%
- 1.2 Computer labwork 30%

2.0 Final Examinations: 50%

- 2.1 Theory: 20%
- 2.2 Practical 30%

PRESCRIBED READINGS

1. Jerrett, M., Gale, S., & Kontgis, C. (2010). **Spatial Modeling in Environmental and Public Health Research. International Journal of Environmental Research and Public Health**, 7(4), 1302-1329.
2. Coulton, C. J., Korbin, J., Chan, T., and Su, M. (1997). **Mapping resident perceptions of neighbourhood boundaries website**<http://www.lib.unc.edu/reference/gis/>
3. Campbell (2011) **Introduction to Remote Sensing**. 5th Edition. Chapter 5 - Image Interpretation

RECOMMENDED READINGS

1. Bakker, M. de, and L. Bakker, (2000). **Changes in GI education**, EUGISES 2000, 7- 10 September, Budapest, Hungary
2. Environmental Systems Research Institute (ESRI). (2014). **GIS Tutorial for Health**: Fourth Edition. Redlands CA: ESRI Press. Available through ESRI press:
3. Olson, C.E. (1960). **Elements of Photographic Interpretation Common to Several Sensors.” Photogrammetric Engineering** 26 (4): 651–656.
4. Olson, C.E. (2009). **“Is 80% Accuracy Good Enough?” In Proceedings of the ASPRS 17th Pecora Conference.**

COURSE TITLE: RESEACH PROJECT II

COURSE CODE: EHS 415

INTRODUCTION

Health research is a systematic and principled way of obtaining evidence (data, information) for solving health care problems and investigating health issues. The student shall be required to outline the key characteristics of methods for conducting enquiry. Special emphasis is placed on systematic and principled research methods for conducting applied research and producing the best possible evidence for solving health problems. The course will involve data collection, data analysis and data presentation followed by dissertation write up

The primary aim of this course is to enable the student collect both primary and secondary data. Once data collection has been achieved, the student shall proceed to write the dissertation with the help of the supervisor. The writing up of the dissertation shall spill over into the second semester of the fourth year. A student shall be required to defend his/her thesis before the panel of examiners.

COURSE AIM

The student should be able to conduct research with required outline while following key characteristics of methods for conducting enquiry.

COURSE OBJECTIVES

1. Collect both primary and secondary data and integrate them
2. Analyze data appropriately
3. Apply the principles of research protocol development

COURSELEARNING OUTCOMES

1. Appropriately collect data
2. Analyse data
3. Present data
1. Appropriately write up Dissertation
2. Present the Dissertation for defense before the panel of examiners

NOTIONAL HOURS: 70 HOURS

1. Field work (data collection): 5 hours per week
1. Assessment and self-study (Appropriately write up Dissertation): 5 hours per week

ASSESSMENT METHODS

1. Dissertation 100 %

COURSE TITLE: INDUSTRIAL TRAINING II

COURSE CODE: EHS 416

INTRODUCTION

Students will be attached to Local Authorities for practice. The course provides students opportunity to undertake practical experience in various activities that are within the jurisdiction of Local Authorities under the Public Health Department.

COURSE AIM

The course provides students opportunity to undertake practical experience in various public health activities in Local Authorities.

COURSE OBJECTIVES

1. Develop the capacity to work effectively with related professional groups.
2. Expose students to industrial processes that falls within five pillars of Public health training and practice
3. Attain practical competences in the fields highlighted in the practical Log Book
4. Produce a well written report which reveals the hazards in that industry with appropriate control measures

COURSE LEARNING OUTCOMES

1. Develop ability of working effectively with other related professionals
2. Appropriate description of industrial processes
3. Appropriate identification of hazards in a workplace or premises
4. Appropriate production of a written report an industrial process

COURSE CONTENT

1.0 COMMUNITY HEALTH

- 1.1 Attend at least one full council meeting and at least one sub-committee.
- 1.2 Attend at least one planning/management meeting in the Public Health dept. of the Local Authority
- 1.3 Investigate at least four different types of potential nuisances or conditions prejudicial to health.
- 1.4 Recognise and understand at least four different pest infestations, two of which must involve different invertebrate pests e.g. wasps, cockroaches, pharaohs ants etc. and two of which must involve mammalian or avian pests e.g. rats, mice, bats, etc
- 1.0** Identify three potential epidemics of disease and implement control measures, monitor continued development and recurrence.
- 1.1** Demonstrate your knowledge of the procedures to be followed in dealing with premises and/or persons found to be in a filthy and/or verminous condition by documenting your involvement with at least one actual or suspected case
- 1.2** Demonstrate your involvement in the licensing and/or registration process by providing details of at least three cases, one of which must be a public entertainment licence, one must be relating to existing law. the third can be from any other aspect of the licensing or registration of premises, for example, body piercing, taxis, cinemas, hair salons, barbershop and schools.

2.0 FOOD SAFETY

- 2.1 Inspect one premises under Public Health (Meat, abattoir and butcheries) Regulations
- 2.2 Inspect one restaurant approved under the Food and Drugs Act
- 2.3 Inspect either (a) a dairy or (b) a dairy products plant approved under the Public Health (Milk products) Regulations and Dairy and Dairy Produce Act Cap 230
- 2.4 Inspected at least one of each of the following types of premises: A food retailer (not being a butcher) selling a range of open foodstuffs; A restaurant, café or canteen; A takeaway facility (not being combined with 'eat in' premises), either static or mobile; a hotel kitchen rated 3-5 stars; bakery, confectionary, meat processing/canning and ice cream manufacturing; A thermal processing plant, e.g., one undertaking canning, aseptic packaging or pasteurisation; and a milling plant.
- 2.5 Document your involvement with at least two cases of food not of the nature, or substance, or quality demanded or that is wrongly labelled
- 2.6 Carry out audits of two different premises, producing different types of food products where you have identified practices which could lead to food being produced not meeting the Public Health Act and Food and Drugs Act (or other appropriate legislation) and show how you determined the most appropriate course of action to deal with those issues or how practical steps had been taken to prevent such breaches.
- 2.7 Investigate two cases of food poisoning and foodborne disease, of which at least one should have been an outbreak.
- 2.8 Inspect two butchers' shops that are the subject of butchers' shop licensing.
- 2.9 Investigate at least two food complaints

3. BUILT ENVIRONMENT

- 3.1 Inspect two unplanned developments.
- 3.2 Inspect three properties with a view to determining fitness for habitation. At least one of the inspections must be in relation to a dwelling which is, or has been, deemed to be unfit for habitation
- 3.3 Conduct four investigations into different types of nuisances or conditions likely to be prejudicial to health
- 3.4 Document your involvement on area housing issues, be they block repair, renewal or generation areas, clearance sites or similar.
- 3.5 Document your involvement with at least two applications for planning consent at least one of which must involve the regulation of harmful effect upon the environment.

4.0 WATER AND SANITATION

- 4.1 Inspect various sources of rural water supplies
- 4.2 Inspect urban drinking water treatment plants
- 4.3 Conduct water quality surveillance
- 4.4 Participate in the construction of sanitary facilities
- 4.5 Inspect wastewater treatment plants
- 4.6 Inspect septic tanks and associated soakways
- 4.7 Conduct wastewater quality monitoring
- 4.8 Inspect drainage works
- 4.9 Test drainages

6.0 OFFICE ORGANISATION AND ADMINISTRATION

- 6.1 Carry out administrative functions in a Public Health office as may be assigned by the supervisor
- 6.2 Attend administrative meetings as may be required
- 6.3 Take minutes of the meetings as may be assigned by the supervisor
- 6.4 Carry out any other function (s) as may be assigned by the supervisor

At the end of the attachment, the student should present to his/her mentor or supervisor and to a small group of his/her peer evidence of vocational competence.

TEACHING METHODS

1. Tutorials
2. Field visits
3. Demonstrations
4. Practical attachment to industry
5. Report writing

NOTIONAL HOURS: 130 HOURS

1. Tutorial: 2 hours per week
2. Practical/lab work: 3 hours per week
3. Field work (including report writing): 3 hours per week
4. Assessment and self-study: 1 hour per week

ASSESSMENT METHODS

1. Summative assessment:	100%
1.1 Presentation of the report to peers	10%
1.2 Written report	30%
1.3 Practical log book	60%

PRESCRIBED READINGS:

1. Bassett W.H. (2004). **Clay's Handbook of Environmental Health**. London: Spon Press.
2. Koren, H., Bisesi, M. (2003). **Handbook of Environmental Health: Biological, Chemical and Physical agents of Environmentally Related Disease**. Fourth Edition, Vol. 1. New York: Lewis Publishers

RECOMMENDED READINGS

1. Afubwa, S.O., and Mwanthi, A.M. (2014) **Environmental Health and Occupational Health and Safety**. Nairobi: Acrodile Publishing Ltd
2. Stewart, J. (2001). **Environmental Health and Hosing: Clay's Library of Health and the Environment**. Volume 1. London: Spon Press.
3. Fumkin, H. (2010). **Environmental Health: From Global to Local**. Second edition. San Francisco: John Wiley and Sons Ltd.

YEAR FOUR SEMESTER TWO

Course Codes	Course Titles
PHS 421	Climate Change and Disaster Risk Reduction
PHS 422	Project Management
PHS 423	Health Economics and Financing
PHS 424	Introduction to Political Education & Public Administration
PHS 425	Human Resource Management

COURSE TITLE: CLIMATE CHANGE AND DISASTER RISK REDUCTION

COURSE CODE: EHS 421

INTRODUCTION

This course seeks to impart a broad understanding of the theory, methods, tools and skills required for conducting analyses of: vulnerability and adaptation to climate variability and change (including extreme climatic events); disaster risk reduction and other environmental changes. Additionally, the course emphasizes the integration of disciplines and covers a range of subject matter, from climate science, biophysical environmental impacts to socio-economic effects.

COURSE AIM

To equip students with knowledge and skills on how to protect human health and environment from climate change and reduce disaster risk.

COURSE OBJECTIVES:

1. Explain the basic concepts of climate change science
2. Describe the anthropogenic drivers of climate change
3. Elucidate observed and projected changes in the climate system
4. Illustrate how climate change affects human health
5. Outline adaptation measures against climate change
6. Establish climate resilient health systems
7. Perform vulnerability and adaptation assessment
8. Formulate the health component of a national adaptation plan
9. Outline climate change mitigation measures
10. Describe health impact assessment process
11. Describe the stages of risk assessment for decision making

COURSE LEARNING OUTCOMES

1. Recommend appropriate measures to mitigate the main causes of global climate change and the likely impacts
2. State how climate change adaptation and mitigation are linked to disaster risk reduction
3. Conduct the participatory monitoring and evaluation of community responses to climate change and associated disasters
4. Advocate organizational changes necessary for developing climate resilient health systems
5. Demonstrate knowledge of how to access local, national and international information about climate change effects on health, relevant to adapting health services
6. Illustrates how to use information about climate change effects on health to improve decisions about health services delivery
7. Initiates and participates in collaborative learning opportunities with health and environmental professionals active in climate change management.
8. Conduct risk assessment as aid for decision making
9. Demonstrates application of this knowledge to adapt and improve health services delivery

COURSE CONTENT:

1.0 Climate Change Impacts on Human Health and the Environment.

- 1.1 Introduction to Climate Change Science
 - 1.1.1 Weather and Climate
 - 1.1.2 The Greenhouse Effect
 - 1.1.3 Climate Change and Global Warming
- 1.2 Anthropogenic Drivers of Climate Change
- 1.3 Observed and Projected Changes in the Climate System
- 1.4 How Climate Change Affects Human Health
- 1.5 Climate Change Adaptation
- 1.6 Climate Change Mitigation
- 1.7 Building Climate Resilient Health Systems

2 Disaster Risk Reduction

- 2.1 Environmental Health and disasters
- 2.2 Disasters and emergencies
 - 2.2.1 Droughts
 - 2.2.2 Floods
 - 2.2.3 Hurricanes
- 2.3 The effects of disasters on Public Health facilities and services
- 2.4 Vulnerability to disasters and emergencies
- 2.4 Human actions that increase vulnerability to disasters
- 2.5 Relief actors and their role in disaster risk reduction
- 2.6 The disaster-management cycle
- 2.7 Steps in disaster management
 - 2.7.3 Vulnerability assessment
 - 2.7.4 Prevention and mitigation
 - 2.7.5 Emergency preparedness
 - 2.7.6 Planning, policy and capacity building
 - 2.7.7 Emergency response
 - 2.7.8 Rehabilitation, reconstruction and recovery
- 2.8 Public health activities during disasters and emergencies
 - 2.8.3 Shelter and emergency settlements
 - 2.8.4 Water supply
 - 2.8.5 Sanitation
 - 2.8.6 Food safety
 - 2.8.7 Vector and pest control
 - 2.10 The structure of the Disaster Management System in Zambia

3.0 Disaster Risk Assessment

- 3.1 Definition of Disaster Risk Assessment
- 3.2 Purpose and scope of Risk Assessment
- 3.3 Episodes and activities in relation to the risks and occurrence of sudden disasters
- 3.5 Decision making scenarios

3.6 The Process of Risk Analysis

- 3.6.1 Assessing the hazard
- 3.6.2 Assessing vulnerability
- 3.6.3 Assessing manageability
- 3.6.4 Quantifying the risk

TEACHING METHODS

- 1. Lectures
- 2. Tutorials
- 3. Group discussions
- 4. Field visits
- 5. Demonstrations
- 6. Presentations

NOTIONAL HOURS: 150 HOURS

- 1. Lecturers: 3 hours per week
- 2. Tutorial: 2 hours per week
- 3. Seminar: 2 hours per week
- 4. Field work (including report writing): 3 hours per week
- 5. Assessment and self-study: 1 hour per week

ASSESSMENT METHODS

- 1. Continuous assessment 40%**
 - 1.1 2 Tests 30%
 - 1.2 2 Assignments 10%

- 2. Final Examinations 60%**
 - 2.1 Theory 60%

PRESCRIBED READINGS

- 1. Intergovernmental Panel on Climate Change (2014) **Climate Change 2014: Impacts, Adaptation, and Vulnerability**, Cambridge University Press, Cambridge, United Kingdom.
- 2. World Health Organisation (2015) **Operational Framework for Building Climate Resilient Health Systems**, WHO Press, Geneva, Switzerland.
- 3. World Health Organisation (2002) **Environmental Health in Emergencies and Disasters**, WHO Press, Geneva, Switzerland.

RECOMMENDED READINGS

- 1. Intergovernmental Panel on Climate Change (2014) **Climate Change 2014: Mitigation of Climate Change**, Cambridge University Press, Cambridge, United Kingdom.
- 2. WHO (2003) **Climate Change and Human Health - Risks and Responses**, WHO Press, Geneva, Switzerland.
- 3. World Health Organisation (2013) **Protecting Health from Climate Change: Vulnerability and Adaptation Assessment**, WHO Press, Geneva, Switzerland

COURSE TITLE: PROJECT MANAGEMENT

COURSE CODE: PHS 422

INTRODUCTION

The course is designed to develop a basic understanding of the purposes, processes, norms, standards and guiding principles for planning, monitoring and evaluation within the contextual framework of development. Good planning, monitoring and evaluation can help an organisation extract relevant information from past and ongoing activities that can be used as a basis for programmatic fine-tuning, re-orientation and future planning. Without effective planning, monitoring and evaluation, it would be impossible to judge if work is going in the right direction, whether progress or success can be claimed, and how future efforts be improved

COURSE AIM

The course aims at equipping students with knowledge, skills and attitude on the development of robust results framework for public health projects and programmes, with clear indicators, baselines and targets; and setting up monitoring system.

COURSE OBJECTIVES

1. Define the key terms and concepts
2. Describe the term Project
3. Describe the common terms used in project management
4. Describe the project life cycle
5. Explain the project triangle (boundaries)
6. Outline the significance of projects to society
7. Discuss the role of the project manager
8. Describe the steps used in project proposal writing
9. Give an account of the qualities of a project manager
10. Outline the processes involved in project implementation phase
11. Discuss the importance of leading and inspiring the project team.
12. Outline the process of monitoring and evaluating the project positively.

COURSE LEARNING OUTCOMES

1. Demonstrate the understanding of the basic concepts of project cycle and project planning cycle.
2. Develop skills in developing project ideas using appropriate methodology.
3. Design a project using Logical Framework Analysis (LFA)
4. Appraise the project using appropriate appraisal techniques.
5. Demonstrate the understanding of the process of implementing a project.
6. Demonstrate the understanding of the concept of monitoring and evaluation of projects.
7. Use skills to monitor and evaluate developmental projects and programmes

COURSE CONTENT

1.0 Introduction

- 1.1 Definition of the terms 'Project, Planning, Benchmarking, TQM.
- 1.2 Characteristics of the project
- 1.3 Ancient versus Contemporary (Modern) Projects

2.0 Project Planning

- 2.1 Concept of project and project cycle
- 2.2 Concept of project planning and project planning cycle
- 2.3 Generation of project idea
- 2.4 Environment scanning for project idea
- 2.5 Sources of project ideas
- 2.6 Preliminary screening of project ideas
- 2.7 Project rating index

3.0 Project Feasibility Analysis

- 1.1 Economic and financial feasibility
- 1.2 Technical and managerial feasibility
- 1.3 Environmental feasibility

4.0 Project Planning and Design Process Logical Framework Analysis (LFA)

- 4.1 Concept of LFA
- 4.2 Stakeholder Analysis
- 4.3 Problem Tree and objectives tree analysis
- 4.4 Analysis of strategies
- 4.5 Fixing project output and activity
- 4.6 Assumptions and risks Monitoring and evaluation indicators

5.0 Project Appraisal

- 5.1 Concept and Process
- 5.1 Appraisal Techniques
- 5.4 Discounted and non-discounted cash flow techniques
- 5.5 Social – cost benefits analysis and analysis of risk

6.0 Project Implementation Planning:

- 1.1 Concept and Need for project implementation planning
- 1.2 Pre-requisites for project implementation
- 1.3 Process of project implementation planning
- 1.4 Tracking, controlling and reporting changes
- 1.5 Networking techniques for project implementation development of project network
- 6.6 Dealing with risks
- 6.7 CPM model – Project review and control.

7.0 Project Monitoring

- 3.4 Need for project monitoring

- 3.5 Indicators of monitoring
- 3.6 Process and outcome monitoring
- 3.7 Designing a monitoring system
- 3.8 Project management information.

8.0 Project Evaluation

- 8.1 Types of evaluation - Internal, External, Self-process, Outcome and impact evaluation
- 8.2 Approaches to evaluation – Developing Indicators, Measuring Costs - Evaluation benefit
- 8.3 Lessons learnt

9.0 Participatory Monitoring and Evaluation

- 9.1 Need for participatory Monitoring and Evaluation
- 9.2 Difference between conventional and Participatory Evaluation
- 9.3 Monitoring and Evaluation Methods and Tools
- 9.4 Designing Participatory Monitoring Systems and Evaluation Framework

10.0 Leadership in Project Team

- 10.1 The concept Team
- 10.2 Role of the leader in the team
- 10.3 Team dynamics
- 10.4 Matrix Working
- 10.5 Situational Leadership style
- 10.6 Effective Communication
- 10.7 Managing Oneself, then the Project

11.0 Field Study and Reporting

- 11.1 Developing a format for project monitoring and evaluation
- 11.2 Monitoring of an on-going project
- 11.3 Evaluation of a completed Projected

TEACHING METHODS

- 1. Lectures
- 2. Tutorials
- 3. Group discussions
- 4. Field visits
- 5. Demonstrations
- 6. Presentations

NOTIONAL HOURS: 80 HOURS

- 1. Lecturers: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Seminar: 1 hour per week
- 4. Assessment and self-study: 1 hour per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- 1.1 2 Tests 30%
- 1.2 2 Assignments 10%

2.0 Final Examinations 60%

- 2.1 Theory 60%

PRESCRIBED READINGS

1. Gopalakrishnan. P., Ramamurthy, V.E. (2000). **Text Book of project planning and Management Cycle**. Hawaii: Fast west centre.
2. Mosse, D. (2005). **Cultivating Development**. New Delhi: Vistaar Publications.

RECOMMENDED READINGS

1. Bapat, J.(2005)**Development projects and critical theory of Environment**.New Delhi: sage Publication,
2. Cleland, D. I. (1995).**Project Management: Strategic Design and Implementation**. McGraw Hill Inc.
3. Chandra, P. (1987). **Projects: Preparation, appraisal, budgeting and implementation**, New Delhi: Tate McGraw Hill Publishing Company Ltd.,

COURSE TITLE: HEALTH ECONOMICS AND FINANCING

COURSE CODE: PHS 423

INTRODUCTION:

This course introduces students to economic principles used to analyze the behavior of consumers, healthcare providers, health insurers and policymakers and their interactions that determine the allocation of scarce resources and the production and consumption of healthcare services. The course further intends to provide students with sufficient background in health economics theory to be able to understand how the health care market works and under what conditions health care can be efficiently produced and allocated through markets, regulations and planned system including the component of financing health services.

COURSE AIM:

The course aims at equipping students with knowledge and skills on the economic framework to enable them understand the structure and function of national health systems including financing of health services

COURSE OBJECTIVES:

1. Define basic concepts of economics and health economics
2. Describe various health care financing schemes
3. Demonstrate understanding of economic evaluation tools
4. Critically analyze current and future healthcare issues from an economic perspective.
5. Discuss the public policy issues that surround the production, distribution and consumption of healthcare services with health economists and others.
6. Critically analyze the vast array of literature produced by health economists and related researchers.
7. Describe the institutional structure of the healthcare sector in Zambia

COURSE LEARNING OUTCOMES

1. Apply the principles of program planning, development, budgeting, management and evaluation in organizational and community initiatives Discuss the policy process for improving the health status of populations
2. Identify the components and issues of the organization, financing and delivery of health services and PH systems in Zambia
3. Identify and critique basic theories, concepts and models from a range of social and behavioral disciplines that are used in public health research and practice
4. Recognize system-level properties that result from dynamic interactions among human and social systems and how they affect the relationships among individuals, groups, organizations, communities, and environments (system)
5. Communicate in writing and orally, in person, and through electronic means, with linguistic and cultural proficiency (communications-informatics)
6. Apply evidence-based approaches in the development of social and behavioral science interventions.

7. Analyze key comparative health indicators and social determinants of health for diverse communities
8. Apply the principles of economic evaluation to indigenous programs with a particular focus on the allocation of resources relative to need
9. Identify and apply appropriate theory and evidence-based approaches to inform the design and evaluation of public health interventions for diverse communities.
10. Critically analyze, use and synthesize information from multiple sources to address public health problems/issues (systems thinking)
13. Evaluate and interpret empirical findings in health economics.

COURSE CONTENT

1.0 Introduction to Health Economics

- 1.1 Definitions of terms (economics, health economics, microeconomics, macroeconomics)
- 1.2 Why health economics (The economic way of thinking about health)
- 1.3 Concept of development and scarcity
- 1.4 Health measurement, determinants and long run trend
- 1.5 Health care spending – some facts
- 1.6 Economic Models of Health
- 1.7 Production function, inputs and outputs
- 1.8 The Behavioural Economics of Health

2.0 Health and Socio-economic Status (SES)

- 2.1 What is SES mean?
- 2.2 What is SES in health?
- 2.3 Why is socioeconomic status relevant to health?
- 2.4 How does education affect socioeconomic status?
- 2.5 Health and economic development

3.0 Basic tools of economic analysis

- 3.1 Demand, need, supply, costs and opportunity costs.
- 3.2 Economic efficiency and effectiveness
- 3.3 Markets and market failure price distortions and externalities.
- 3.3 Government intervention in markets

4.0 Economic evaluation

- 4.1 Cost utility analysis
- 4.2 Cost benefit analysis
- 4.3 Cost effective analysis
- 4.4 Cost analysis

5.0 Financing health care

5.1 Financing of health care

- 5.1.1 Demand for health
- 5.1.2 Resource mobilization
- 5.1.3 Cost sharing; User charges
- 5.1.4 Community financing
- 5.1.5 Prepayment scheme
- 5.1.6 Social health insurance
- 5.1.7 Private insurance
- 5.1.8 Out-of-pocket payment
- 5.1.10 Resource allocation and Equity

TEACHING METHODS

1. Lectures
2. Tutorials
3. Group discussions
4. Field visits
5. Demonstrations
6. Presentations

NOTIONAL HOURS: 80 HOURS

1. Lecturers: 3 hours per week
2. Tutorial: 1 hour per week
3. Seminar: 1 hour per week
4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- | | |
|-------------------|-----|
| 1.1 2 Tests | 30% |
| 1.2 2 Assignments | 10% |

2.0 Final Examinations 60%

- | | |
|------------|-----|
| 2.1 Theory | 60% |
|------------|-----|

PRESCRIBED READINGS

1. Kutzin, J. (1995). **Experiences with organisational and financing reform of the health sector. World Health Organisation. WHO/ARA1CC/97.5.** Geneva
2. The Economic Development Institute of the World Bank. (1998). **Introduction to the Concepts and Analytical Tools of Health Sector Reform and Sustainable Finance.** Washington: World Bank Publications
3. McIntyre, D. (2007). **Learning from experience: health care financing in low and middle income countries. Global Health Research Forum.** Geneva.

RECOMMENDED READINGS

1. Schieber G, Maeda A. A. (). **Curmudgeon's Guide to Finance Health Care in Developing Countries.** The World Bank
2. McIntyre D et al. (2008). **Key Issues in equitable health care financing in East and Southern Africa.** EQUINET Discussion Paper No. 66. Harare

COURSE TITLE: INTRODUCTION TO POLITICAL EDUCATION AND PUBLIC ADMINISTRATION

COURSE CODE: PHS 424

INTRODUCTION:

The course provides students with an academically rigorous public administration and political education based on the relevant public policy and public management. The course gives background on how to effectively apply techniques to effectively administer public organizations to include such administrative specialties as budgeting, personnel management and policy evaluation including addressing problems in the implementation of specific areas of public policy; foster an understanding of values and ethics promoting cultural diversity, democracy, and constitutional principles;

COURSE AIM:

The course aims at providing students with background to the systematic study of government and politics with focus on Africa and equips students with knowledge of the history, theories and practice of public administration.

COURSE OBJECTIVES:

1. Explain concepts applicable to Political Science and Public Administration.
2. Discuss the political processes in Africa and the major issues and problems that confront African countries.
3. Explain topics of public administration at each level of government.
4. Demonstrate understanding through practical application and give some examples of case studies.

COURSE LEARNING OUTCOMES

1. Lead and manage in public governance
2. Participate in and contribute to the policy process
3. Analyze, synthesize, think critically, solve problems and make decisions
4. Articulate and apply a public service perspective
5. Communicate and interact productively with a diverse and changing workforce and citizenry

COURSE CONTENT

UNIT ONE: POLITICAL EDUCATION

1.0 Introduction to Political Education

- 1.1 Definition of concepts
- 1.2 The nature of politics and Government
- 1.3 Survey of approaches to the study of Politics
- 1.4 Political Conflicts: Sources and conflicts management.

2.0 Theories of the State:

- 2.1 Marxist
- 2.2 Non-Marxist
- 2.3 Pluralist Theories

3.0 Class Analysis:

- 3.1 Marxist
- 3.2 Weberian Theories.
- 3.3 Political Thought: Western and African.

4.0 Legitimacy, Liberty and Equality

- 4.1 Source of Power and Authority Individual
- 4.2 Collective rights and duties.

5.0 Democracy

- 5.1 Meaning of Democracy
- 5.2 Characteristics of Democracy
- 5.3 Elections and Electoral Systems.
- 5.4 Constitutions and Constitutionalism

6.0 Totalitarianism

- 6.1 Nature of Totalitarianism
- 6.2 Forms of Totalitarianism
- 6.3 Military Co-corporatism
- 6.4 Fascism.

7.0 Case studies:

- 7.1 Political processes and developments in selected African countries.

UNIT TWO: PUBLIC ADMINISTRATION

1.0 Introduction to Public Administration

- 1.1 Definition of Public Administration
- 1.2 The platforms for Public Administration at each level of government
- 1.3 The Constitution

2.0 The Search for Scope and Purpose of Public Administration

- 2.1 Public Administration

2.2 Democracy

2.3 Bureaucratic Power

3.0 The Concept of Ecology

4.0 Federalism and Intergovernmental Relations

5.0 Organizational Theory

6.0 The Concept of the Informal Group

7.0 Decision Making in Administration

7.1 Decision Making: The Concept of Incremental Choice

7.2 The Challenges of Administrative Leadership

8.0 The Concept of Competing Bureaucratic systems

9.0 Personnel Administration and Human Resources Development

10.0 The Concept of the Public Service Culture

10.1 Governmental Budgeting

10.2 Public Policy and Program Implementation

10.3 The Concept of Effective Public Organizations

10.4 Performance Management in the Public Sector

11.0 Administrations Communication's Professional Centrality

11.1 Regulations and Administrative Law

12. The Concept of Public Service Sector Deregulation

12.1 Public Administration in a Time of Conflict and Social Change

12.2 The Concept of Competing Ethical Obligations

TEACHING METHODS

1. Lectures

2. Tutorials

3. Group discussions

4. Field visits

5. Demonstrations

6. Presentations

NOTIONAL HOURS: 100 HOURS

1. Lecturers: 3 hours per week

2. Tutorial: 1 hours per week

3. Seminar: 1 hours per week

4. Field work (including report writing): 2 hours per week

5. Assessment and self-study: 1 hour per week

ASSESSMENT METHODS

1.0 Continuous assessment 40%

- 1.1 2 Tests 30%
- 1.2 2 Assignments 10%

2.0 Final Examinations 60%

- 2.1 Theory 60%

PRESCRIBED READINGS

2. Harris, P.P. (1976). **Foundation of Political Science**. London: Hytchinshom.
3. Plant, R. (1991) **Modern Political Thought**. Oxford: Blackwell.

RECOMMENDED READINGS

1. Kutzin, J. (1995). **Experiences with organizational and financing reform of the health**
Ball, A. (1988). **Modern Politics and Government**. London: MacMillan
2. Tordoff, W. (1993). **Government and Politics in Africa**. London: Macmillan
3. Richard J. Stillman, (2005). **Public Administration - Concepts and Cases**. 8th Edition.
Boston: Houghton Mifflin Company.

COURSE TITLE: HUMAN RESOURCE MANAGEMENT

COURSE CODE: PHS 425

INTRODUCTION:

The course is designed to provide students with background managerial skills of on the maintenance of better human relations in the organization by the development, application and evaluation of policies, procedures and programs relating to human resources to optimize their contribution towards the realization of organizational objectives. The course includes planning development programs based on identified performance gaps by enabling individuals to achieve short-term and long-term organizational goals and supporting succession planning by implementing leadership development programs.

COURSE AIM:

To equip students with skills to effectively deploy, appraise, motivate and retain human resource for health workforce for achievement of organizational goals and objectives

COURSE OBJECTIVES:

1. Demonstrate acquisition of knowledge, attitudes and skills in managing human Resources
2. Plan and retain a sufficient, well-motivated and skilled workforce in the district / hospital
3. Monitor and evaluate the implementation of human resource plans

COURSE LEARNING OUTCOMES

1. Critically set up strategic and long range planning
2. Conduct system and program evaluation
4. Analyze and interpret of rules and regulations
5. Create and manage budgets
6. Set up systems, programs, policies, processes and procedure development
7. Manage staff through selection, training, evaluation and performance management

COURSE CONTENT:

1.0 Human Resources Management and Development

1.1 Introduction to Human Resource Management and Development

- 1.1.1 The concept of Human Resource Management and Development
- 1.1.2 Division of functions and tasks among the various levels of the health delivery system
- 1.1.3 Human resource management and development challenges faced by health managers at the district level and their linkage to National Human Resource Plan for the Public Health Sector.
- 1.1.4 Strategies to respond to human resource challenges at the district and hospital levels

1.2 Performance Management:

- 1.2.1 Definition of concepts
- 1.2.2 Performance management process
- 1.2.3 Performance appraisal process and methods
- 1.2.4 Annual performance Appraisal system (APAS)
- 1.2.5 Performance management package (PMP) in the Public Service;

1.3 Human Resources Training and Development:

- 1.3.1 Definition of concepts; motivation; retention; staff audit; recruitment
- 1.3.2 Overview of motivation theories and process
- 1.3.3 Human resources crisis: Brain drain factor
- 1.3.4 Types of pay and remuneration in the public service
- 1.3.5 Pay roll management (PEMEC)
- 1.3.6 Strategies for attracting and retaining human resources
- 1.3.7 Preparing training and development plans
- 1.3.8 Determining training and development needs and priorities
- 1.3.9 Continuous professional development
- 1.3.10 Monitoring and evaluating training programmes
- 1.3.11 Retention and motivation of human resources

1.4 Mentorship and coaching

- 1.4.1 Definition of terms: mentorship; coaching; counselling
- 1.4.2 Manager as facilitator coach, counsellor and mentor.

1.5 Financial and material resource management

- 1.5.1 Resource mobilization
- 1.5.2 Budgeting and costing
- 1.5.3 Financial accounting and management system

1.6 Supply chain management

- 1.6.1 Use of standard operating procedures
- 1.6.2 Supply chain pipeline (Distribution)
- 1.6.3 Inventory control systems
- 1.6.4 Pull and push systems
- 1.6.5 Assessing stock status
- 1.6.6 Concept of forecasting and quantification

- 1.6.7 Ordering of commodities
- 1.6.8 Receiving and storing
- 1.6.9 Logistic management information system (LMIS)

1.7 Change management

- 1.7.1 Definitions
- 1.7.2 Theories of change
- 1.7.3 Management of change
- 1.7.4 Conflict management
- 1.7.5 Problem solving skills

1.8 Discipline and Grievances:

- 1.8.1 Definition of concepts
- 1.8.2 Overview of professional codes of conduct of various cadres
- 1.8.3 The role of disciplinary and appointments committees
- 1.8.4 Principles of discipline;
- 1.8.5 Types of disciplinary action
- 1.8.6 Disciplinary procedures
- 1.8.7 Grievance handling
- 1.8.8 Appeals procedure
- 1.8.9 Arbitration

TEACHING METHODS

- 1. Lectures
- 2. Tutorials
- 3. Group discussions
- 5. Demonstrations
- 6. Presentations

NOTIONAL HOURS: 80 HOURS

- 1. Lecturers: 3 hours per week
- 2. Tutorial: 1 hour per week
- 3. Seminar: 1 hour per week
- 4. Assessment and self-study: 2 hours per week

ASSESSMENT METHODS

- 1.0 Continuous assessment 40%**
 - 1.1 2 Tests 30%
 - 1.2 2 Assignments 10%
- 2.0 Final Examinations 60%**
 - 2.1 Theory 60%

PRESCRIBED READINGS

- 1. Annstrong Michael (2003). **A handbook of Human Management Practice.** 9th Edition. London: KoganPage

RECOMMENDED READINGS

- 1. Byars, Lloyd L. and Rue. (1995). **Human Resources Management.** 4th Editions.

