

Nepal Health Professional Council

Bansbari, Kathmandu

Syllabus for Public Health Licensing Examination

2073

1. Background

The health sector has often been considered an entry point for overall development of the country. Nepal is one of the 189 countries committed to the Millennium Development Goals (MDGs), universal health coverage and more recently Social Development Goal (SDG). In order to fulfill the goals of SDGs, the impetus created by the Nepal Health Sector Strategy 2015-2020. More importantly, constitution of Nepal has enshrined health as fundamental rights of Nepali people and mandated the provision free basic health care services. This has rightly acknowledged the importance of health sector which demands the production and deployment of quality health service providers in the country.

Progress in the health sector over the last decade has been impressive with most key health (and nutrition) indicators showing improvements. Life expectancy at birth in Nepal is rising and is now higher than most other neighboring countries at 67 (Asia-Pacific HDR, 2012), infant mortality has declined to 46 infant deaths per 1,000 live births and maternal mortality now stands at 229 maternal deaths per 100,000 live births (MMM Study 2009). This has suggested that more needs to be done to ensure the constitutional mandates. In this context, Nepal health professional Council has realized the importance of providing the public health licensing through the examination. This will help ensure the quality of public health services through the skilled human resources.

2. Broader Principles of Public Health Curriculum

The broader principle of public health curriculum of both bachelor and master of public health is based on the preventive, promotive and rehabilitative health need of the people. The curriculum offers both knowledge and skills required to understand the situation of health status and plan to prevent the disease or condition, promote the healthy lifestyle and community involvement to support the people with disease or conditions. NHPC, recognizes the following core areas that should cover in public health education. In bachelor degree, students learn the basic knowledge and skills. During the master's degree, students should get the advanced or specialized knowledge in any specific areas of public health educations.

- Introduction to public health and health policies,
- Understand the disease paradigms and their shifts,
- Analyze the disease or situation,
- Different dimension of health,
- Human biology.
- Approaches, methodologies of development health to public health,
- History, development and scope of health to public health,
- Principles, concept, models, dimensions and elements of health to public health,
- Practice of health to public health management within and beyond the national to international territory,
- Use of trans-medical models in modern family and community health studies,
- Economics of health and health care,
- Health systems development,
- Health promotion and communication,
- Population and development dynamics in modern public health management,
- Globalization of health to public health service management,
- Challenges of modern health to public health management in the region or territory,
- Ethics and politics of family-community health and development,
- Health research and development, and
- Growth and development of professionalism.

The curriculum should address the changing sub-national, national, regional and international public health needs.

3. Need of Examination

The main intention of conducting examination is to ensure the supply of skilled public health human resources in the market. It also aims to contribute in the production of quality public health graduates. NHPC is a statutory authority formed under the Nepal Health Professional Council Act 2053 Bikram Era sets out condition for the registration of identified health professional including public health graduates. The Act prohibits any public health professional practice without being registered with NHPC. The council maintains register and those who are registered are granted with practicing certificate. The responsibility of quality control of the health professional education in the nation lies in the hands of NHPC. Taking the mandate from this legal provision, the NHPC has decided to conduct the public health licensing examination.

4. Objective of the Syllabus

The overall objective of this syllabus is to ensure the availability of basic public health knowledge among the public health practitioners. The specific objective is to define the core subjects and provide the weightage for the purpose of licensing examination of those who completed 4 years bachelor degree in public health from the recognized universities.

5. Examination Methodology

NHPC collects the online applications from of both masters and bachelor degree graduates. The subject committee reviews the certificates and makes the recommendation to the examination committee. The examination committee following this syllabus takes examination in the periodic basis. *Those who have complete 4 years bachelor degree in public health from recognized university are eligible to enter into this licensing examination.* The questions of respective subject will be collected from the experts and choose the questions randomly during the examination.

6. Distribution of Weightage by Subjects

6.1 Bachelor in public health (total mark 100)

SN	Subject	Mark
1	Basic science: anatomy, physiology, microbiology, biochemistry, pharmacology, immunology, toxicology, entomology, pathology and first-aid	10
2	Basic and applied epidemiology	15
3	Research and biostatistics and population studies	15
4	Introduction to public health, issues and primary health care community health development.	15
5	Health promotion and education, community health and school health, mental health	10
6	Health system development and managements including health financing	15
7	Family health, child health and food and nutrition	10
8	Environmental and occupational health	5
9	Sociology and anthropology	5
	Total	100

6.2 Basic Science:, anatomy, physiology , biochemistry, microbiology, pharmacology, immunology, toxicology and entomology , pathology and first aid - 10

Anatomy: Definition of terminologies used in anatomy, different components of animal cell. basic types of tissues with their characteristic features and organ systems.

Physiology: Introduction to different components of animal's cell and their function, different tissue of body and their characteristics, body fluids and electrolyte balance their classification and composition and homeostasis.

Biochemistry: Introduction and application of biochemistry in public health. Basic concept of acid, base and salt. Definition, classification, physical and chemical properties of carbohydrates, protein, amino acid and fatty acid. Glucose absorption and its homeostasis. Important aspects of essential amino acids and fatty acids. Biomedical importance of cholesterol, bile salt, macro and micronutrients and vitamins.

Microbiology: Introduction to microbial world, Classification of microbial diseases, Introduction to community acquired microbial infection.

Bacteriology: Classification of bacteria. Normal bacterial flora on or in the body. Concept of opportunistic and pathogenic organisms. Bacterial physiology and its growth factors. Mechanism of infection. Spread of diseases, pandemic, endemic, epidemic and laboratory infection. Physical sterilization, chemical disinfects ion and radiation. Collection and transport of specimen for identification of common bacterial communicable diseases (respiratory, genital and gastrointestinal diseases). Gram staining and AFB staining in identifying bacteria.

Parasitology: Classification of human parasite, introduction to parasitic diseases associated with poor personal and public hygiene. Blood parasites (malaria parasite, kala-azar, microfilaria), life cycle and mode of infection. Collection of sample, processing and identification. Treatment, prevention and control. Intestinal protozoa (entamoeba histolytica, Giardia lamblia and Cryptosporidia). Life cycle and mode of infection. Collection of sample, processing and identification. Treatment, prevention and control. Intestinal worms (Roundworm, hookworm, pinworm, whipworm). Tapeworm: T. saginata, T. solium, echinococcus granulosus. H. nana, life cycle and mode of infection. Collection of sample, processing and identification. Treatment, prevention and control.

Virology: Introduction, classification of virus, replication of virus introduction to viral disease of community concern, collection and preservation of viral specimen for laboratory study, prevention and control of viral diseases.

Immunology: Introduction to immunology, defense mechanism of body, antigen and antibody hypersensitivity reaction and basic concept of immunology in diagnosis of viral diseases.

Pharmacy and pharmacology: Meaning of pharmacokinetics, Pharmaco-dynamics and Pharmacokinetics. Classification of drugs, classification, mechanism of action, fate of drugs, side effects indication and contraindication of life saving drugs. Concept of essential drugs and its implementation in Nepal. Essential drugs used in free health services. Use and misuse of antibiotics. Drug policies, drugs acts and standard treatment protocol. Concept of GMP, GLP, and GCP

Toxicology: Definition of Toxicology and terminology used in toxicology.

Occupational and environmental toxicology. Acceptable limits of toxic exposure, prevention and control.

Entomology: Definition and classification of important arthropods and rodents, diseases and health hazards associated with arthropods and rodents. Prevention and control of diseases and health hazards.

Pathology: General and systemic pathology (in detail of all system).

First Aid: Shock, types of shock, identify first aid measures to the patient, First aid measures in case of poisoning (insecticides, rodenticides, drugs, alcohols), Foreign body in ear, nose, throat and eyes and provide first aid, Injury, identify measures to provide first aid appropriately, Hemorrhage, first aid to control external bleeding, Burns, classification, its percentage and first aid measures to thermal and chemical burns, Measure to manage the case of frost bite, Fractured bones and dislocations, its first aid measurement, Heatstroke and its first aid measurement, Rabid animal bites and its first aid measurement, First aid measures in case of drowning, Measures to be taken in case of snake bites, Acute mountain sickness and its first aid measures.

6.3 Basic and Applied Epidemiology

15

Historical development, definition and scope of Epidemiology. Terminology used in epidemiology. Epidemic, Endemic, Pandemic, Sporadic, Zoonotic, Iatrogenic, infection, communicable disease, pollution, contamination, infestation, epidemic, endemic, sporadic, pandemic, epizootic, enzootic, source of infection, reservoir, case, carrier, host, incubation period, communicable period, secondary attack rate, agent, anti-genicity, infectivity, pathogenicity, virulence, infective dose, environment, vector, Parasite Epidemiology methods: distribution of diseases. Frequency measures used in epidemiology-Proportion, Rate and ratio. Frequency measures used in morbidity, mortality, case fatality, incidence, and prevalence.

Measures of disease frequency

Rate, ratio, proportion, population at risk, prevalence (rate), incidence (rate), cumulative incidence proportion, mortality and morbidity rates/ratio.

Measures of association

Absolute risk: risk difference, attributable fraction, population attributable risk relative risk/risk ratio, and odds ratio.

Epidemiological study design: Descriptive, analytical and experimental, case control study, cohort study and experimental study.

Non-Communicable disease epidemiology: CVD, COPD, Cancer, Diabetes, Accidents, Mental health, Suicide, Drug abuse and Snake bites.

Communicable Disease Epidemiology : Viral, Bacterial, Fungal and Protozoal infections, helminthes infestation, zoonotic diseases and others (Trachoma)

Introduction and consequences of conflict and disaster, disaster planning, preparedness and prevention, conflict management and its importance in health service management, and epidemic investigation component of field epidemiology

6.4 Research and Biostatistics, population studies (Demography)

15

Research: Meaning, definition and purpose of research, importance of research in public health, basic terms used in research concepts, types of research design, research methods, techniques, tools, steps of research process, and process of writing the research report.

Population studies: Importance and implication of population study in public health, population structure, characteristics and components and projection. Demographic health survey in Nepal. Population growth and its trend in Nepal with comparison. Three Components of population growth (Fertility, mortality and Migration). Population policy and program in Nepal. Public Health and application of IT

Biostatistics: Definition of Common Statistical Terms, difference between Statistics and Biostatistics –some concepts, definition of biostatistics, scope, role, usefulness of different branches of statistics in the investigation of community health and public health research and uses of Biostatistics in public health research. **Descriptive Statistics:** Basic concept of variables, types of variables (discrete and continuous variables), scales of measurement. Collection and recording of statistical information on public health and its related fields from primary and secondary sources, Tabulation, processing and presentation of statistical data: frequency distribution and different types of tables (one way, two way and manifold tables). **Measures of Central Tendency:** Mean, Median & Mode. **Different partition values** (quartiles, deciles & percentiles). **Measures of dispersion (variability):** Range, standard deviation, variance and coefficient of variation (CV). **Probability Distribution:** Concept of set theory, permutations, combinations, factorial, definition of Probability, Multiplicative Law of Probability, addition law of probability, Conditional Probability, and Bayes' Theorem, Random variable, discrete and continuous probability distribution, definition and properties of Binomial, Poisson and Normal probability distribution, Expected value and variance of Binomial, Poisson and Normal distribution. **Sampling theory, sampling distribution, estimation and hypothesis testing.**

6.5 Introduction to public health, issues and primary health care community health development: 15

- Introduction to public health
- Scope of public health

- Concepts and distinction between public health, community health, social medicine and socialized medicine
- Ottawa Charter of health promotion
- Priorities for health promotion (in reference to Jakarta Declaration)
- Concepts of Health and Diseases, Prevention and levels of Prevention. Application of public health from different models
- Health Promotion: Concept and scope of health promotion Legal aspect in Public health. Health policies and plans
 - Alma-Ata and other International Declarations, Environmental and occupational health laws. Consumer rights, Patient rights
 - Universal health coverage,
 - Public Health Problems in Nepal: Communicable Diseases, Non-communicable Diseases, Mental Health and drug abuse, Vaccine preventable diseases. Food and waterborne diseases
 - Nutrition deficiency diseases.
 - Issues in public health: Issues in epidemiological study in Nepal (TB, Malaria, Polio, Diabetes etc
 - Issues in Reproductive Health in Nepal: holistic model of family health biomedical, bio-psycho- social models and their determinants, Decreasing Antenatal Visits, Low institutional delivery and CPR, Unmet need of Family planning, addressing gender based violence, Reproductive Health problems of the elderly people.
 - Issues in child health in Nepal: CB-IMNCI, EPI program
 - Issues of healthy ageing in Nepal
 - Issues in environmental and Occupational health in Nepal
 - Uses of pesticides and its effect in health: Waste management
 - Disposal of health care waste and general waste ,Health of the Agriculture, Industries, factories, Transportation and health institution and laboratory workers.

Development of public health in Nepal

- Ancient and pre unification period
- Pre Rana Regime period
- Rana Regime period
- Public health after 2007 BS

6.6 Health promotion and education, community health and school health, mental health-10

- Health Promotion and Education: History, meaning, concept, principles, scope and philosophy of health education and promotion. Principles of learning
- Different theories and modalities for behavioral changes, Change process, modules and strategies for change. Methods and Media for health education and health promotion. Selection of appropriate health education method and Medias and its importance. Health promotion and Education in Nepal
- Policy and strategy programs regarding health promotion and education in Nepal. Introduction of NHEICC, Programs, Goal, policy, strategies and activities of NHEICC. Planning of health education and promotion program. Importance of health education and promotion planning. Steps of Health Education Planning,
- PRECED and PROCED framework of health education diagnosis
- Approaches in health promotion and education planning
- Monitoring and indicator of health education and promotion programs

6.7 Health system development and managements including health financing: 15

- Meaning, concept, principles, scope and application of public health management and administration
- Planning, elements of planning,, types and method of planning
- Health and health service management in Nepal
- Various approaches of health service delivery in Nepal
- Health Service Management, Information System (HMIS)/DHIS
- Organizational structure of health system in Nepal
- Brief history of development of health services in Nepal
- Traditional Health Care practices. Ayurveda, Homeopathic and Allopathic medicine in Nepal. Integrated Health services in Nepal
- National Health policy-2014. Long-term Health plans in Nepal. Current Five year Health Plans in health services 2015-2020, Three years plans, annual plans
- Organizational structures of health system in Nepal from central level to community level
- Brief introduction of various health programs in Nepal in term of goals, objectives, strategies and activities, TB control program, Leprosy control program, Malaria control program, EPI/ National Immunization Programme, Nutrition/MCH, Kala-azar, STDs and AIDS control program. Environmental health and health training.
- District health system
 - Organizational structure of DPHO/DHO/PHCC/HP. Roles and responsibilities of DPHO/DHO/PHCC and HP. Supervision Monitoring and evaluation of health programs. Referral system in Nepal from different service providing levels. Coordination mechanism from central to health post
- Sources of Financing in health system of Nepal
 - Budgeting process, Irregularity clearance mechanism in health system

6.8 Family health, child health, food and nutrition 10

Family Health: Concept and historical development of Family Health. Roles of Family Health in prevention, promotion, treatment and rehabilitation of health. Reproductive Health Policies and Adolescent Health.

Health Problems related to Reproductive health and Safe Motherhood program. Pattern of communicable and non-communicable diseases concerned to reproductive health and safe motherhood

Family planning principles and methods and importance of counseling

Challenges in Family planning program specially in FP contraception

Life cycle approach in health

Ageing and disable people's health

Geriatric and disables health problems under family health care setting in Nepal. Policies, strategies and programs for ageing and disable population

Child Health: Child health and national health care system

Child health diseases burden in Nepal. Malnutrition and vaccine preventable diseases. Indicators used in child health program

International declarations on health

Food and nutrition: Food classification, Sources and daily requirement of calorie. Unhygienic food and effect in health. Food borne diseases

Food hygiene and its importance. Nutrition related health problems in Nepal. Food security and nutrition. Food acts and implementation. Inter-sectoral cooperation, coordination for nutrition problem in Nepal and multispectral nutrition plan.

6.9 Environmental and Occupational Health

5

- Introduction to Environmental and occupational Health
Meaning, scope and component of environmental and occupational health.
Application and importance of environmental and occupational health
- Environmental Health problems of Nepal: Unsafe drinking water, Indoor Air pollution, Deforestation and desertification, Flooding and soil erosion, Poor sanitation and hygiene, Industrial pollution in urban
- Water resources management: Source and water contamination
Water quality and human health. Waterborne diseases.
Water purification
- Solid waste Management: Types and source of hazardous waste
Management of hazardous waste including hospital waste management.
- Biodiversity and its conservation: Concept and importance of Biodiversity. Biodiversity and human health. Conservation of Biodiversity and its impact on human health
- Occupational Health and Safety development: Meaning and concept of occupational health. Most common occupational diseases in Nepal. Policies related to occupational Health. Control and treatment of occupational Diseases. Promotion of occupational Health
- Basic concept of environmental toxicology, prevention and control.
- Environmental problems: Meaning of global warming and climate change. Global environmental warming: Causes of global warming and climate change. Health impact of global warming and climate change
- Disposal of hospital waste and human excreta
- Occupational health and safety: Meaning and historical development, occupational Health practices applied to specific exposure (Physical, Chemical and biological). Major occupational diseases and their prevention

6.10 Sociology and Anthropology

5

- Introduction: definition and meaning of sociology, anthropology scope and classification of sociology
- Basic concept: Definition, basic element and characteristics of society, community, groups and social classes. Meaning and characteristics of social norms. Social process, Socialization, Acculturation, Assimilation. Enculturation. Conflict
- Social Institution: Marriage, Family and kinship system: Religious, political and economic institutions, Social and cultural change. Meaning and characteristics of socio-cultural change. Factors for socio-cultural change. Uses of sociology and Anthropology in public health
- Health behavior, illness behavior and sickness role. Models of health behavior. Socio-cultural influences in health behavior
- Culture and Health: Definition of culture, characteristics, elements and types of culture. Self-medication and other prevailing health care practices in Nepal. Meaning, nature and causes of social problems. Consequences of socio-cultural changes. Meaning and agencies of social control, Practices of social control in health field in Nepal
- Social psychology: Basic concept and different dimension.
- Concepts of health politics and importance in public health intervention.