

# Occupational Health





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## INTRODUCTION

Global Occupational Health and Safety (OH&S) is highly related to the drive of economic globalization. The gap between developed and underdeveloped countries increases as the global market grows, which generates many issues related to OH&S services in developing countries, such as occupational diseases, poor working conditions, and injuries. Although the economic gap and lack of resources are the main reasons for such problems, other issues in developing countries had contributed to the low status of OH&S services, including untrained workers, informal and illegal labor, lack of law enforcements, and the poor conditions of construction, and agricultural sectors.

Public health including workers' health is affected by the current situation. Inadequate training and education and lack of resources have influenced the OH&S services in many countries in the region. Additionally, the fragile infrastructure and weak awareness regarding the importance of OH&S services increase the necessity for a high-quality training programs in the field.

Thereby, developing a tailored training program is a guaranteed way to enhance the infrastructure, increases the level of awareness, and improve the working conditions of many workers.

There are 15 courses under three programs:

Foundations in Global Environmental and Occupational Health

Course 1: Introduction to Public Health

Course 2: Basic Epidemiology

Course 3: Epidemiology of Environmental and Occupational Health

Course 4: Introduction to Global Environmental Health

Course 5: Principles of Toxicology

Management of Occupational Health and Safety

Course 6: Occupational Health and Safety

Course 7: Indoor Air Quality

Course 8: Infection Prevention and Control

Course 9: Hazardous Waste Management

Course 10: Applied Research in Occupational Health

Occupational Health Risk Management

Course 11: Occupational Risk Assessment

Course 12: Occupational Risk Management

Course 13: Occupational Risk Communication

Course 14: Management and Leadership

Course 15: Scientific Writing

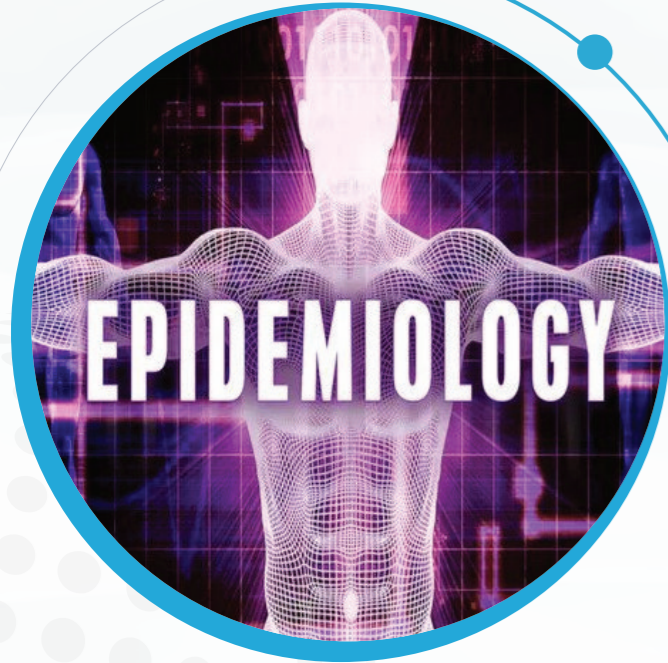
Each training course is delivered in (30) Learning Hours. These courses can be taken as part of the three-month programs for a Technical Diploma, or as stand-alone courses. Upon meeting the course requirements, the participant will be awarded a Successful Completion Certificate by the International Academy of Public Health (IAPH) and accredited by the Agency for Public Health Education Accreditation (APHEA).

Training Delivery Methods:

- In-class method
- Online method



Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Introduction to Epidemiology
- Descriptive Epidemiology
- Introduction to Biostatistics Part 1
- Introduction to Biostatistics Part 2
- Public Health Surveillance
- Data Analysis and Displaying
- Outbreak Investigation Part 1
- Outbreak Investigation Part 2
- Writing outbreak investigation Report
- Data Quality

### Description

Epidemiology, often referred to as the “cornerstone” of public health, is the study of the distribution and determinants of diseases, health conditions, or events in populations, as well as the application of that knowledge to the control of health problems.

This course is designed to introduce participants to basic epidemiological concepts and methods and provide them with core skills in epidemiology, that is with working knowledge of the acquisition, analysis, and interpretation of information about disease occurrence in populations. Participants will gain practical experience in planning epidemiological research studies along with the appraisal of epidemiological literature.



### Learning Outcomes

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

- 1- Discuss the role of epidemiology within the broader field of public health and identify its relationship to the fields of medicine, environmental health, social and behavioural sciences and health policy
- 2- Demonstrate a sound knowledge of basic concepts and methods of epidemiology
- 3- Use descriptive epidemiological concepts such as person, time, and place to describe the distribution of disease
- 4- Calculate and interpret epidemiological measures taught in the course (e.g. incidence, prevalence, risks, odds ratio, etc.)
- 5- Plan and design public health research
- 6- Demonstrate the application of epidemiological research for the formulation, implementation and evaluation of health policies

Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Environmental Epidemiology: Basic Principles and General Practice
- Study Designs in Environmental Epidemiology
- Assessments in Environmental Epidemiology
- Toxic Effects of Heavy Metals
- Environmental Disease: Mutation, Cancer, and Birth Defects - Part 1
- Environmental Disease: Mutation, Cancer, and Birth Defects - Part 2
- Epidemiology of Indoor Air Pollution
- Benefits of SEA

### Description

This course is concerned with the environmental and occupational branches of epidemiology. It introduces the basic epidemiologic concepts within the framework of environmental health. Occupational epidemiology studies the effect of a variety of exposures in the workplace, such as chemical, biological or physical (e.g., noise, heat, radiation) agents on workers and evaluate adverse health outcomes in order to determine if an agent or set of agents may explain their disease.

Participants will learn to link external factors that affect the incidence, prevalence, and geographic range of health conditions. They will also illustrate how they are used to address public health problems. This course also covers a wide range of topics that are related to the application of epidemiological methods in populations of workers.



### Learning Outcomes

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

- 1- Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety.
- 2- Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures.
- 3- Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.
- 4- Draw appropriate inferences from epidemiologic data.
- 5- Evaluate the strengths and limitations of epidemiologic reports
- 6- Bridge the connection between fundamentals of study design and principles in epidemiologic methods
- 7- Use epidemiological techniques to conduct occupational studies that are suitable to assess risk in a workplace
- 8- Evaluate the occupational studies methodologies, flaws and limitations.

Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Introduction to Environmental Health
- Core Concepts of Environmental Health
- Environmental Health Indicators
- Environmental Inequalities
- Basic Concept of Global Health
- Growth Theory
- Introduction to Environmental Health and Challenges in SDGs
- Environmental Challenges Overview
- Emerging Environmental Challenges
- Climate Change
- Forestry Resources Degradation

### Description

Environmental health is a branch of public health. This course is an introduction to the field, current issues, and interventions for solving environmental health problems. The course will assist the participant in becoming aware of the scope of the field of environmental health and the ideas on which environmental health interventions are based. This course also will provide an interdisciplinary introduction to the concept of global health, with a special focus on developing countries.

There are numerous global challenges facing the world today, which will be reviewed in the course in addition to address common issues known to burden health care globally. Such challenges are growing over time which produces disparities in health between and within countries.



### Learning Outcomes

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

- 1- Identify the major environmental agents, their interactions, and adverse effects
- 2- Predict the nature of the agent's adverse effects from its physical, chemical, or infectious properties, and how that may influence environmental or public health
- 3- Describe and use models for predicting the magnitude of adverse effects in biological systems
- 4- Identify significant gaps in the current knowledge base concerning health effects of environmental agents, and areas of uncertainty in the risk-assessment process
- 5- Recognize the current legislation and regulation regarding environmental issues



Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Introduction to Toxicology
- Toxicodynamics and Toxicokinetics
- Reproductive Toxicity, Immunotoxicity, and Skin Toxicity
- Pesticides Toxicity
- Metals Toxicity
- Respiratory Toxicology
- Hepatotoxicity and Nephrotoxicity

### Description

This course focuses on the fundamentals of toxicology and the mechanisms by which environmental and occupational chemical agents affect human health. The principles and mechanisms will be approached in three areas: 1) General principles: Route of exposure; dose response; absorption, distribution, storage, metabolism and excretion; 2) Effects on target organs: liver, kidney, blood, respiratory system and nervous system; and 3) Application of the principles of toxicology using: solvents, pesticides and metals. At the end of this course, the participant will be able to apply the principles of toxicology for compounds found in the environment and workplace.



### Learning Outcomes

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

- 1- Explain the impact of the conditions of exposure, routes, duration, and frequency on the toxic effects of compounds
- 2- Explain and interpret the relationship between dose and the toxic response
- 3- Describe the processes of absorption, distribution, storage, and excretion and apply the principles of toxicant transport across membranes to the uptake, action and excretion of chemical agents
- 4- Describe and characterize the types of reactions in Phase I and Phase II metabolic pathways and give prototypical examples of each
- 5- Explain mechanisms whereby toxicants cause injury to the liver, kidney, lung, and nervous system and give examples of prototypical toxicants for each organ
- 6- Identify the acute and chronic effects of hydrocarbons, halogenated hydrocarbons, pesticides, and heavy metals; characterize their mechanisms of toxicity, and describe measures to preventive or decrease toxic effects

Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Principles of Occupational Health and Safety
- Occupational Workplace Injuries and Accidental Prevention
- Occupational Diseases and Work-related Diseases
- Occupational Toxicology
- Prevention of Occupational Diseases
- Occupational Safety and Health Administration (OSHA) Regulations

### Description

This course will address the most important health disorders affecting people as a result of their work such as respiratory diseases and musculoskeletal disorders caused by overexertion or repeated exertion, cancer, hearing loss, skin disorders, and occupational stress.

Focusing on identifying and preventing work-related diseases, the course will commence with an introduction to scientific methods and its application particularly in epidemiology. It will also provide a critical evaluation of the relationship between work exposures and the occurrence of disease.



### Learning Outcomes

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

- 1- Evaluate the major occupational hazards and related occupational disorders in major industries
- 2- Assess the ways in which physical and chemical agents at work affect human health
- 3- Develop critical and systemic approaches to the evaluation of the association between occupational hazards and diseases
- 4- Apply principles of toxicology, epidemiology, and biological monitoring in the prevention of occupational disorders

Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Pollutants and Air Pollution
- Sources of indoor air pollutants
- IAQ Hazards to Human Health and Productivity
- Difference Between the Indoor Air Quality (IAQ) and Air Quality Index (AQI)
- HVAC Basics and Indoor Air Quality
- Green buildings

### Description

This course discusses indoor air pollutants, their sources, effects on human body, and ways of control. Good indoor air quality (IAQ) is a key aspect of sustainable design. The goal of IAQ is to effectively use design solutions that promote the best quality indoor air, maximizing the well-being of the occupants through minimizing airborne contaminants.

Through the concept of IAQ, indoor air pollutants and their effects will be addressed, as well as guidelines on IAQ, and how to maintain good IAQ.



### Learning Outcomes

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

- 1- Explain the classification of air pollutants
- 2- Identify different sources of indoor air pollutants
- 3- Apply measures to minimize and reduce indoor air pollution
- 4- Recognize the importance of good Indoor Air quality (IAQ and the consequences of poor indoor air quality)
- 5- Understand the goals of good IAQ
- 6- Explain the different systematic human effects caused by indoor air pollutants

Duration: 30 Learning Hours  
25 CPD Points

### Course Outline

- Transmissions and Precautions.
- Hospital Epidemiology.
- Chain of Infection.
- Epidemiology of Viral Respiratory Diseases - COVID-19
- Hand Hygiene Compliance.
- Personal Protective Equipment (PPE) for COVID-19 Virus Frontline Workers.
- Cleaning Disinfection and Sterilization.
- Management of Infectious Medical Waste Definition, Segregation, Collection and Treatment.
- Surveillance System.
- Post-Exposure Management.

### Description

All health care professionals must understand the principles and demonstrate competence in preventing and controlling infections, including healthcare associated infections.

This course is developed to provide the trainees with the basic knowledge and skill needed to prevent the transmission of infections in health care settings.



### Learning Outcomes

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

- 1- Describe and explain the infection chain
- 2- Identify the different modes of transmission of the infection
- 3- Describe the principle of infection control in hospital and community-based setting
- 4- Differentiate between four types of transmission precautions
- 5- List important components of hospital/clinic-based infection prevention and control (IPC) program
- 6- Describe the advantages and disadvantages of the various methods for disinfection and sterilization

Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Hazardous Waste Management.
- Pathways, Fate and Deposition of Hazardous Waste.
- Integrated Solid Waste Management Principles and Municipal Residual Regulations.
- Transportation of Hazardous Waste.
- Treatment Methods and Processes of Hazardous Waste.
- Disposal of Hazardous Waste.
- Medical-Biomedical-Infectious Waste Management.
- Hazardous Waste and Emergency Response.

### Description

This course addresses the background and current/future trends in toxic and hazardous waste management. Identifying, testing, and managing medical toxins, hazardous waste, manures, and other waste residuals. It includes topics such as waste minimization, hazardous waste treatment, residuals management, and emergency response.

Additionally, regulations concerning classification, transportation, treatment, and abandon sites will be covered. The course will cover field trips to municipal recycling center, infectious waste incinerator, and landfill operational site.



### Learning Outcomes

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

- 1- Identify and interpret the criteria for the classification of a substance as a solid/ hazardous waste along with its history
- 2- Identify waste minimization and source reduction along with audits
- 3- Assess and describe the procedure for solid/sediment/hazardous waste identification and characterization along with the toxicological parameters of hazardous waste
- 4- Identify and describe the protocols for emergency response and risk
- 5- Elucidate and interpret the regulations concerning the handling, transportation, and disposal of hazardous, solid, and medical waste
- 6- Define and elucidate the listing, management, and treatment of medical/infectious waste
- 7- Define and discuss the municipal residual regulations
- 8- Synthesize physical/chemical/biological mitigation techniques for the control of hazardous wastes and their sites
- 9- Compare and contrast methods of ultimate disposal and sustainable resource recovery
- 10- Address and describe solid waste management including landfill operation

Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Materials and Methods, Study Designs
- Study Design Selection, Study Area/Setting
- Study Population and Sampling
- Basics of Sample Size
- Study Variables, and Data Collection Tools and Techniques
- Data Analysis and Presentation
- Potential Errors in Research and Critical Appraisal

### Description

This course allows participants to learn and use various concepts in research methods in Occupational Health. The course also contains in-class exercises that allow participants to match learnt concepts to their prospective research projects.

It builds the capacity to correctly frame their samples, calculate the sample size and use suitable tools and techniques to collect the data.



### Learning Outcomes

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

- 1- Define research variables
- 2- Identify study population
- 3- Utilize appropriate sampling techniques
- 4- Identify and differentiate between random sampling error and bias
- 5- Calculate sample size for different study designs
- 6- Use various data collection technique and tools

Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Introduction to Risk Assessment
- Environmental Risk Assessment
- Occupational Health Risks for Healthcare Workers
- Health Assessment and Surveillance
- Uncertainties in Risk Assessments

### Description

This course develops the qualitative and quantitative skills necessary to evaluate the probability of health effects from exposure to environmental contaminants. Basic concepts of qualitative and quantitative risk assessments are demonstrated with practical case studies. Emphasis is placed on hazard identification, dose-response evaluation, exposure assessment, and risk characterization.

Integration of risk assessments with risk management and risk communication with the public are discussed. Regulatory aspects of risk assessment in the promulgation of occupational standards are presented.



### Learning Outcomes

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

- 1- Define and discuss basic risk assessment concepts and their basis in human health toxicology
- 2- Identify and explain the four steps in qualitative and quantitative risk assessment: hazard identification, dose-response evaluation, exposure assessment, and risk characterization
- 3- Use quantitative risk assessment methods and mathematical models for high-to-low dose extrapolation in non-cancer health outcomes
- 4- Use quantitative risk assessment methods and non-threshold mathematical models for cancer risk assessment
- 5- Discuss the derivation, uses, limitations, and applications of uncertainty analysis and probabilistic risk assessments
- 6- Perform exposure assessments based on data from case studies
- 7- Evaluate the use of risk assessments within risk management and risk reduction decision making
- 8- Obtain and use published risk assessment guidelines and information resources for databases supporting the public health professional involved in risk assessment

Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Risk Management
- Disaster Risk Management Frameworks
- Risk Reduction Plans
- Information Management in Disasters
- Economics of Risk Management
- Environmental Hazards and Human Health

### Description

Public health is affected by a wide spectrum of hazards ranging from physical, chemical, and biological factors. When they interact with people and health system vulnerability factors, human health and lives become at risks. In order to minimize those risks, robust risk reduction measures need to be taken.

The main objective of this course is to learn how to manage risks in the proper way that is suitable to human and occupational health.



### Learning Outcomes

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

- 1- Describe the cost of risks and the benefits of reducing them
- 2- Demonstrate the development of risk reduction plans
- 3- Budget for risk management
- 4- Take management decisions based on risk assessment outcomes



Duration: 30 Learning Hours  
25 CPD Points

### Course Outline

- Introduction to Risk Communication During Emergencies
- Basics of Communication Skills
- Psychology of Crises
- Building Blocks of Risk Communication
- Setting Communication Objectives
- Development of Risk Communication Plans
- Development of Communication Message and Material Session
- Role of Information Technology in Risk Communication
- Media and Mass Communication Channels
- Messages and Audiences
- Spokesperson
- Community Engagement and Social Mobilization
- Resources, Stakeholder and Partners for Risk Communication

### Description

Risk communication refers to the dissemination of information to the public about health risks and events. It encompasses a range of communication skills required through preparedness, response, and recovery phases of a public health event. Risk communication is one of the core pillars of the response to public health risks and plays a vital role in influencing informed decisions and making positive behavioral change.

The objective of this course is to improve written and oral communication skills and provide hands on experience in the art of two-way communication of occupational issues between scientists, managers, policy makers, and the public.



### Learning Outcomes

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

- 1- Explain the fundamental principles of communication and message development
- 2- Explain factors that contribute to the public's perception of risk, compare and contrast the public's views with scientists' views
- 3- Describe techniques for addressing and listening to community concerns
- 4- Discuss factors and methods for working with the news media on environmental issues
- 5- Discuss and demonstrate the approach and level of scientific detail for communicating with policy makers
- 6- Research current issues, assimilate findings, and communicate a conflicting scientific opinion and/or public opinion.
- 7- Develop written communication skills targeting the public communities, policy makers, and the news media.



Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Teambuilding
- Leadership Styles and Theories
- Project Management
- Health Program Planning Building Health Programs that work
- Stakeholder Analysis
- Resource Management
- Health Policy
- Organizational Management
- Health Service Delivery
- Change Management
- Interpersonal Communication Skills
- SelfAwareness and SelfAssessment
- Conflict Management
- Problem Analysis
- Manage your time and manage your stress

### Description

This course provides participants with basic concepts and principles of health systems, health policy, planning and management. It enables them to analyze the key aspects of health policy in developing health systems and the changing role of governments and ministries of health in health care delivery.

It provides the opportunity to understand and critically analyze issues like health system development and reforms, policy change and centralized versus decentralized health systems.



### Learning Outcomes

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

- 1- Distinguish and apply log frames, results and rights-based approaches in developing health plans
- 2- Identify key principles of policy development, planning, and management of health resources
- 3- Apply management skills and functions according to the principles of organizational management
- 4- Recognize and apply Change Management
- 5- Demonstrate the skills of teamwork and communication skills
- 6- Develop and assess leadership management skills and styles, specifically: delegation, active listening, conflict resolution and time management

Duration: 30 Learning Hours  
25 CPD Points



### Course Outline

- Research Process and Argument Matrix
- Writing Title Page, Abstract, and Introduction
- Writing the Research Methods
- Writing the Research Results
- Writing Discussion, Conclusion and References
- Good Manuscript Writing

### Description

This course is designed to review the steps involved in, peer reviewing, and revising manuscripts for publication. The course participants will refine and demonstrate writing, reading, editing, and reviewing skills through exercises and class discussions. This course aims to teach the fundamentals of effective scientific writing.

Instruction will focus primarily on the process of writing and publishing scientific manuscripts only. The course will be presented in two segments: part (1) teaches participants how to write effectively, concisely, and clearly and part (2) takes them through the preparation of an actual scientific manuscript.



### Learning Outcomes

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

- 1- write a scientific manuscript effectively, concisely, and clearly in the Environmental Health area
- 2- Identify the publications best suited for their work
- 3- Have greater insight into the needs of readers and reviewers
- 4- Comprehend the purpose of each section in a research paper
- 5- Have a wider repertoire of practical strategies to improve their own research writing
- 6- Make strategic choices about how, where and when to publish their research



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