CC309 - GIS for Health Information Systems Management Course

Course Duration: 10 Days
Training Fee: KSH 80,000 | USD 800
Course Registration: **Register Here>>**

1.0. Introduction

In developing countries, public health departments, NGOs related to health care and disease control and many researchers associated with child and women welfare are increasingly adopting Geographic Information Systems for creating information system for disease incidence, query and analysis. This course fulfills the knowledge requirements and skill generation in this direction. Geo-visualization of disease data, trend and hotspot are very powerful techniques in awareness and planning strategies to control disease outbreak. The various kinds of visualization options available will be explained with examples and hands-on exercises and practicals.

1.1. Course Overview

This course will focus on new trends, concepts and essential technologies used for disease surveillance e.g. HIV, Ebola etc., hotspot mapping and health care planning. It is based on theory and hands on learning methodologies including fieldwork data collection and mapping. Students will be provided with historical background of health geography, understanding the importance of geospatial factors related to health and importance of environmental and socio-economic factors influencing the health. Health GIS database is scarce! So, techniques for primary data collection using Google questionnaire, mobile apps e.g. EpiCollect and crowd sourcing will be taught. Linking various kind of spatial database available from secondary sources with current land use/landcover maps and disease records will be taught through exercises.

1.2. Course Content/Outline

i. **Overview of GIS and its applications in Health:** Overview of the topic; Introduction to GIS; Scope of GIS in health sector; Some application examples.
ii. **Role of GIS in Public Health:** Introduction to GIS Applications in Global Health; History of GIS in Health (Dr. John Snow mapping of Cholera in London).
iii. **Use of Citizen GIS in Health Domain:** Volunteer Geographic Information (VGI) in collecting health datasets i.e. household surveys using Mobile GIS tools.
iv. **Spatio-temporal Analysis:** Disease Risk Assessments, Heat Maps, Health Facilities Planning and Accessibility, Exploratory Disease Mapping (Kriging), Agent-based Modelling of Health applications using NetLogo.
v. **Database Development:** Importance of Remote Sensing in creating data layers; Creating Health Information Database; Spatial data in health mapping; Questionnaire based primary data base development; Sensors and online data collection; Creating Secondary database.

1.3. Case Study:

The GIS Risk Assessment of the Distribution of Malaria Epidemic in Kenya.

1.4. Expected Learning Outcomes

i. To relate Geospatial analysis tools to the nature various diseases and healthcare issues, patterns and role of GIS in analyzing health related data;
ii. To evaluate and discuss various case studies related to applications of geoinformatics for the climate change and impact on health;
iii. To discuss through the case studies about applications of GIS for air and water pollution monitoring and its relationship with human health;
iv. To create understanding about handling data from various sources related to disease and other factors and conduct analysis of trends and patterns;
v. To find out causative factors for disease outbreak and conduct risk analysis and finally create risk zonal maps for disease control and prevention.

1.5. Training Tools (Hardware and Software)

1. Handheld GPS;
2. Smartphones;
3. ArcGIS Desktop;
4. Quantum GIS (Q-GIS);
5. EpiCollect5 App;

1.6. Training Style and Approach

1. On-site instructor-led training;
2. On-line self-paced training (optional);
3. Use of PowerPoint Slides;
4. Use of Case Study Videos;
5. Data Collection using phones, GPS etc.

1.7. Who Should Attend this Training?

a. Health Professionals;
b. Health Data Analysts;
c. People working in Health sector etc.