

Health Research and Studies





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INTRODUCTION

It is an established fact that research is deemed highly valuable. It is a tool that serves to inform public health professionals of the issues that are of importance to the advancement of the public health field. Such issues may include updates on disease trends and risk factors, patterns of healthcare service delivery, outcomes of public health interventions, functional abilities of the health system or selected health service delivery points. Research may also shed light on issues pertaining to health care costs and use, supply and demand as well as side issues in the provision of health services, amongst other matters. More specifically, research findings may serve to influence public health policy at various levels from the local, to the subnational, national and international levels. Hence, it is important for public health practitioners to have knowledge of the basic principles of research as this will make them well-versed in the skills they need to apply research principles to public health practice.

The execution of medical and health research in the region may be seen as deficient when compared to research projects implemented in other regions. This finding may be attributed to the fact that some health professionals do not have the knowledge they need to conduct research. Students may need more practical and applied teaching methods integrated in the curriculum for them to grasp the concepts of research. To address this gap, this program adopts a practical skills-based chronological approach to deal with the challenges facing new and inexperienced authors seeking to publish their research findings.

The program takes participants through the process of conducting research, writing research articles and getting their research published in highly regarded journals. It is designed to take a publishing-insider's perspective to enable trainees to improve their research writing and increase their chances of having their articles pass peer review. It also enhances possibilities of articles being read and cited widely once published.

There are 10 courses under two programs and an applied research project as follows:

Foundations in Public Health Research

Course 1: Introduction to Research Methods
Course 2: Research Designs
Course 3: Basic Concepts in Research Methodology
Course 4: Applied Research in Public Health
Course 5: The Statistical Tools (Excel)

Advanced Health Research Methods

Course 6: Advanced Research Methods
Course 7: Advanced Statistical Methods
Course 8: The Statistical Tools (Epi Info)
Course 9: The Statistical Package For Social Sciences (IBM SPSS)
Course 10: 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

- Basics of Research and Scientific Methods
- Types and Applications of Research
- Research Plan
- Literature Review
- Research Question and Hypothesis

Description

This course is a general overview and an introduction to research. Its overall aim is to demonstrate the importance of research and highlight the fact that research in public health can be conducted even in limited-resource settings. This course allows participants to discuss the role of research in public health and development. It also allows them to describe types of research and list various steps involved in a research project.

It also allows participants to decide on types of research they will choose for their projects and on their plans to conduct research. This course is intended to leave participants with confidence in their ability to independently, conduct public health research.



Learning Outcomes

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

- 1- Recognize the importance of research to public health
- 2- Critically assess appropriateness of different research methods and techniques for the study of relevant health research issues
- 3- Explain basic concepts in health research methodology
- 4- Develop a proposal and plan for studying a public health problem to provide evidence for public health practice
- 5- Use software and tools for appropriate data collection and management

Duration: 30 Learning Hours
25 CPD Points



Course Outline

- Descriptive Studies, Case Reports and Case Series
- Ecological Studies
- Cross-sectional Studies
- Cohort Studies
- Case-Control Study
- Clinical Trials
- Quasi-Experimental Designs

Description

This course provides an orientation for different research designs. It aims to enable participants to choose their respective study or research project approach.



Learning Outcomes

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

- 1- Explain and differentiate between research types
- 2- Write case reports and case series
- 3- Identify and apply the most appropriate study design for research projects

3 Basic Concepts in Research Methodology

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 various concepts in research methods. The course also contains 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

- Data Collection Tools and Dummy Tables
- Time Frame, Budget and Pilot Study

Description

In this course participants write their concept notes for their selected topics. It provides an opportunity to recap all research concepts learnt through the previous courses and ends with a written concept note as its main output.



Learning Outcomes

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

- 1- Finalize a research topic for a project
- 2- Identify resources for a literature review
- 3- Refine research objectives and hypotheses
- 4- Finalize research methodology
- 5- Develop a research concept note
- 6- Design a data collection tool or questionnaire
- 7- Develop a research proposal from a concept note
- 8- Devise a Gantt Chart for a research project

Duration: 30 Learning Hours
25 CPD Points



Course Outline

- Introduction to Microsoft Excel
- User Interface
- Data Entry and Edit
- Data Quality
- Data Analysis (functions and formulas)
- Pivot Table
- Data Visualization
- Page Setup and Print

Description

Excel is a spreadsheet application part of Microsoft Office. It is a tool for organizing and performing calculation on data. It allows data analysis and developing tables, chart and graphs. This course has been designed to equip participants with the knowledge and skills that can be applied when conducting public health data surveillance activities in their daily work



Learning Outcomes

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

- 1- Navigate within Excel's User Interface (UI)
- 2- Enter and format data to create a database.
- 3- Use formulas and functions to analyse data.
- 4- Organize data by sorting and filtering.
- 5- Create a histogram, epidemic curve and line graph from a dataset.
- 6- Prepare and print a worksheet.

Duration: 30 Learning Hours
25 CPD Points



Course Outline

- Review of Epidemiologic Study Designs
- Measures of Association and Impact
- Concept of Confounding
- Matching
- Interaction
- Stratified Analysis
- Error and Bias Precision and Validity Quality Assurance and Control

Description

This course addresses the methodological issues crucial to the wide range of epidemiologic applications in public health and medicine. It covers a broad range of concepts and methods, including modern study designs, epidemiologic measures of association and impact, causal inference, methods of handling confounding, methods of identifying effect modification, measurement error and information bias, and validity and reliability.

The main objective of the course is to enhance a student's ability to design and conduct unbiased and efficient health research studies.



Learning Outcomes

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

- 1- Navigate within Excel's User Interface (UI)
- 2- Enter and format data to create a database
- 3- Use formulas and functions to analyse data
- 4- Organize data by sorting and filtering
- 5- Create a histogram, epidemic curve, and line graph from a dataset
- 6- Prepare and print a worksheet

Duration: 30 Learning Hours
25 CPD Points



Course Outline

- Review of Descriptive Statistics
- Interval Estimation and Hypothesis Testing
- Independent t Test
- The Chi-Square Test
- ANOVA Test
- Repeated Measures Analysis
- Simple Linear Regression
- Multiple Linear Regression
- Binary Logistic Regression

Description

This course provides students with the necessary skills they need to perform statistical analysis of data from biomedical research, healthcare administration, electronic medical records, vital statistics, disease registries, and research databases. Students will learn the appropriate statistical techniques used for estimation and inference.

The course enhances participants understanding of statistical modelling for continuous and binary data and their assumptions, correlated data analysis, and longitudinal data analysis. The use of a statistics package, such as SPSS, to analyze case studies will be important throughout.



Learning Outcomes

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

- 1- Understand the strengths, limitations, and principles of different modern study designs
- 2- Identify and interpret effect modification
- 3- Identify potential sources of selection and information bias and understand how to control bias by appropriate study design
- 4- Identify potential sources of confounding and understand how to address confounding in the design and analysis of epidemiological studies
- 5- Explain commonly used considerations for causal inference and models of causality
- 6- Understand the concepts 'validity' and 'precision,' 'random' and 'systematic measurement error,' 'differential' and 'non-differential misclassification,' and the use of validation and reproducibility studies for epidemiological research

Duration: 30 Learning Hours
25 CPD Points



Course Outline

- Introduction to Epi Info and Getting Started
- Creating a survey in Form Designer
- Data entry and validation using Check Code
- Data entry and using Epi Info Data Package
- Data analysis using the Classical Analysis
- Data analysis using the Visual Dashboard and Gadget
- Create maps
- Epi Info Companion for Android

Description

Epi Info is a statistical software for data management that runs under Microsoft Windows for public health practitioners. The program allows for electronic survey creation, data entry and analysis. It enables participants to develop questionnaires, customize the data entry process, enter and analyze data, and develop maps and graphs. The course will provide hands on experience and provide exercises and materials.



Learning Outcomes

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

- 1- Design simple data entry forms using the Form Designer.
- 2- Implement intelligence to data entry forms using Check Code
- 3- Enter records into Epi Info form
- 4- Read multiple data sources and utilize the Visual Dashboard and Classic Analysis sessions for manipulating, managing, and analysing data
- 5- Generate statistics from frequencies, 2X2 tables and means commands
- 6- Output results into HTML, Excel, or Word formats,
- 7- Explain the Epi Info companion for android
- 8- Create maps

The Statistical Package for Social Sciences (IBM SPSS)

Duration: 30 Learning Hours
25 CPD Points

Course Outline

- Introduction
- Descriptive
- Transform
- Missing
- Chi-square
- t-test
- One - way ANOVA
- Two-way ANOVA
- Repeated Measures ANOVA
- Linear Regression
- Binary logistic regression
- Multinomial Logistic
- Factor Analysis
- ROC
- Non - Parametric 2 groups A part 1
- Non - Parametric 3 groups part 2
- Kaplan Meier

Description

In this course participants will learn the main features of the software including setting up a new data file in IBM SPSS ready for analysis, as well as some techniques of data management, and more advanced statistical procedures that are available in SPSS. The course is designed to provide an intensive training to the latest version of the Statistical Package for the Social Sciences (SPSS), now known as IBM SPSS Statistics. The training combines lecture and hands-on sessions, and involves an analysis of a subset of a large dataset.

Participants should have knowledge of basic statistical concepts and should have experience in computer operations using Microsoft Windows. Experience with SPSS is not necessary, although a basic understanding of the purpose and functions of the software is helpful.



Learning Outcomes

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

- 1- Understand the main features of the software
- 2- Manage data in SPSS
- 3- Apply SPSS statistical techniques to summarize and describe data
- 4- Apply more advanced SPSS statistical procedures to analyze the data
- 5- Conduct statistical analysis independently based on the type of outcome and study design
- 6- Interpret results and present findings



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
- 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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