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| Course Title: **Epidemiology-I** | Course Code: **MPH 513** | Credit Hours: **3.0** | Total Marks: **100** |

## **Rationale:** Epidemiology 1 is a 3-credit course designed for public health care professionals. ‘Epidemiology’ is the basic science of public health. Often called “the cornerstone” of public health, epidemiology is the study of the distribution and determinants of diseases, health conditions, or events among populations and the application of that study to control health problems. Epidemiological methods are frequently used by public health professionals to determine relevant risk factors associated with disease occurrence. Knowledge of these risk factors is used to direct further research investigation and to implement disease control measures as well as to promote health.

## **Objectives:** On successful completion of this course, students will be able to:

* Understand the practice of epidemiology as it relates to real life
* Makes for a better appreciation of public health programs and policies.
* Explore public health issues like cardiovascular and infectious diseases
* Know about the advantages and limitations of epidemiologic research

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| **Learning Outcomes** | **Course Content** | **Teaching Learning Strategy** | **Assessment Strategy** |
| Will be able to understand the foundations of epidemiologic principles as applied to the study of diseases and physiologic conditions occurring in groups of population | Introduction to epidemiology including definitions, foundation, basic concepts, scopes, and applications of epidemiologic principles. | Lecture, discussions, group works | Assignment, quiz, problem solving |
| Will be able to comprehend the basic concepts and measures of disease occurrence in populations. | Understanding disease agents, host, environment, and importance of time, place and person and their interrelationships. | Lecture, discussions, group works | Assignment, quiz, problem solving |
| Will be able to-  Develop appropriate epidemiological research methods and study designs to investigate particular research questions. | Epidemiological research methods and study designs | Lecture, discussions, group works | Assignment, quiz, problem solving |
| Will be able to identify cause and effects and various relationship. | Concepts of cause and effects and their relationship. | Lecture, discussions, group works | Assignment, quiz, problem solving |
| Will be able to determine the rates and ratios of disease frequency and measures of association between risk factors and conditions. | Measures of disease frequency, rates, ratios, and vital statistics. | Lecture, discussions, group works | Assignment, quiz, problem solving |
| Able to learn about the advantages and limitations of epidemiologic research study designs and their applications.  Examine the sources of bias in epidemiologic research (confounding, selection bias, and measurement error) and the means to reduce bias. | Types of epidemiologic investigations, descriptive, analytical, cross sectional, cohort, and intervention (clinical trial). | Lecture, discussions, group works | Assignment, quiz, problem solving |
| Able to identify the Epidemiologic investigations, outbreak study and surveillance. | Epidemiologic investigations, outbreak study, and surveillance | Lecture, discussions, group works | Assignment, quiz, problem solving |
| Will be able to gain knowledge about epidemiology of infectious and non-communicable diseases. | Epidemiology of infectious and non-communicable diseases. | Lecture, discussions, group works | Assignment, quiz, problem solving |
| Will be able to understand the screening methods, concepts of reliability, validity, sensitivity, specificity, predictive value. | Screening methods, concepts of reliability, validity, sensitivity, specificity, predictive value. | Lecture, discussions, group works | Assignment, quiz, problem solving |
| Able to Define the advantages and limitations of epidemiologic research study designs and their applications. | Experimental design, field trial, quasi-experimental study. | Lecture, discussions, group works | Assignment, quiz, problem solving |

**Recommended Books:**

1. Text book of Community Medicine & Public Health (latest edition), Rashid, Kabir &Hyder
2. Basic Epidemiology: R. Beaglehole, R. Bonita, T. Kjellstrom
3. Epidemiology: An introduction: Kenneth J. Rothman
4. Epidemiology: Leon Gordis, 5th Edition, 2013, Saunders
5. A Dictionary of Epidemiology, Edited by Miquel Porta 5th Edition
6. Essentials of Epidemiology in Public Health. Ann Aschengrau, George R. Seage III, Third Edition