**Course: Advance Bio Informatics**

**Module Title: Genetic epidemiology**

**Module No: 159**

**Computational Genetic Epidemiology**

Branch of medicine which deals with the incidence, distribution, and possible control of diseases and other factors relating to health

**Definition: Genetic Epidemiology**

Occurrence & distribution of health related diseases or events in specified populations.

A determinant influencing such states, application, and knowledge helps to control health problem. Genes & environment for etiology of diseases

How genetic factors & interaction with other risk factors increase or protect against disease?

Twins & migrant cohorts

Models for risk factor identification.

Genetic & environmental factors

**Basic Terminologies**

Population genetics.

Statistical techniques to evaluate genetic aspects of chronic diseases.

Little or no emphasis on environmental risk factors.

**Advantages**

Conduct descriptive & analytical studies to evaluate gene/environment interactions in disease etiology.

Provide risk factor-specific morbidity rates for purposes of education & intervention.

**Genes as Susceptibility Markers**

Mutation + Exposure = High Risk

Mutation + No Exposure = Moderate Risk

No Mutation+ Exposure= Moderate Risk

No Mutation + No Exposure = Low Risk