Calendar: Essentials of Epidemiology

Week One – Historical Development of Epidemiology, Thinking Epidemiologically

Objectives
• Define the term epidemiology
• Describe two ways in which epidemiology may be considered a liberal arts discipline
• State three important landmarks in the history of epidemiology
• Describe three uses of epidemiology

Required Readings
(1) Chapter 1, Friis
(2) “Thinking Epidemiologically” L. Sever, unpublished essay (Course Documents)

Week Two – Health Indicators and Sources of Data

Objectives
• State three factors that affect the quality of epidemiologic data
• List four sources that are used in epidemiology research
• Calculate two epidemiologic measures
• State one source of epidemiologic data available from an international organization

Required Reading
Chapter 3, Friis

Weeks Three and Four - Epidemiologic Measurements

OBJECTIVES
• State three mathematical terms used in epidemiology
• Differentiate between incidence and prevalence
• State one epidemiologic measure of morbidity and mortality
• Define the term specific rate

Required Readings
Chapter 2, plus pages 57-62, Friis

Week Five - Disease Concepts in Epidemiology

Objectives
• Understand major stages in the disease process
• Define zoonosis and identify selective zoonotic diseases
• Discuss immunity and immunizations against infectious diseases

Revised January 2015
• Be familiar with common nutritional deficiency diseases and disorders
• Be familiar with selected chronic diseases and conditions

Required Reading
Chapter 3 from Merrill (provided)

Weeks Six and Seven - Descriptive Epidemiology and Study Design

Objectives
• Define the term descriptive epidemiology
• Discuss types of descriptive epidemiology studies and their uses
• Describe the process of epidemiologic inference in the context of descriptive epidemiology
• Give two examples each of person, place, and time variables and describe how they related to the distribution of health outcomes

Required Reading
Chapter 4, Friis

Weeks Eight and Nine - Association and Causality

Objectives
• Distinguish between non-causal and causal associations
• Describe two methods for displaying data graphically
• State three criteria of causality
• State one example of how chance affects epidemiologic associations

Required Reading
Chapter 5 Friis

Weeks Ten and Eleven - Analytic Epidemiology and Study Design

Objectives
• State three ways in which study designs differ from one another
• Describe case-control, ecologic, and cohort studies
• Calculate an odds ratio, relative risk, and attributable risk
• State appropriate uses of randomized controlled trials and quasi-experimental designs

Required Reading
Chapter 6, Friis
Week Twelve - Confounding and Bias

**Required Readings** (Provided in Course Documents)
(1) YES chapter on confounding
(2) BMJ article on confounding

Week Thirteen - Dynamics of Disease Transmission

**Objectives**
- Identify selected activities performed in epidemiology.
- Explain the role of epidemiology in public health practice and individual decision making.
- Define epidemic, endemic, and pandemic.
- Describe common source, propagated, and mixed epidemic.
- Describe why a standard case definition and adequate levels of reporting are important in epidemiologic investigations.
- Describe the epidemiology triangle for infectious disease.
- Define the three levels of prevention used in public health and epidemiology.
- Understand the basic vocabulary used in epidemiology.
- Define disease and identify common source and modes of disease transmission.
- Classify acute and chronic disease according to infectivity and communicability.
- Understand the major stages in the disease process.
- Know the five major categories of disease.
- Define zoonosis and identify selected zoonotic diseases and potential carriers of infectious organisms that may be zoonotic.
- Discuss immunity and immunizations against infectious disease.

**Required Readings**
(2) View the video at: [http://www.ted.com/talks/paul_ewald_asks_can_we_domesticate_germs.html](http://www.ted.com/talks/paul_ewald_asks_can_we_domesticate_germs.html)

Week Fourteen - Outbreak Investigations

**Objectives**
- Describe modes of transmission of communicable diseases
- Name three microbial agents associated with infectious diseases
- Describe the epidemiology of two infectious diseases
- State procedures for investigating infectious diseases outbreaks

**Required Reading**
Chapter 8
Week Fifteen - Epidemiology and the Policy Arena

Objectives
• Define the term health policy
• Discuss risk assessment
• Give two examples of policies that are applicable to epidemiology
• Discuss the relationship between policy and screening for disease

Required Reading
(1) Chapter 7, Friis

Supplemental Readings
(2) Rose G. Sick individuals and sick populations. International Journal of Epidemiology 1985, 14: 32-38. (under course documents on Blackboard)
(3) Coughlin S. Ethical issues in epidemiologic research and public health practice Emerging Themes in Epidemiology 2006, 3:16 (under course documents on Blackboard)