The Hashemite University
Faculty of Allied Health Sciences
Epidemiology/ Theory
Course Syllabus

Course Title:	Epidemiology
Course Number:	110501364 & 501246
Pre Requisites:	110104102 & 104102
Credit Hours:	3 credits & 2 credits
Faculty:	Dr. Hanan Al-Modallal
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Office Location:	Nursing Building, Office # 3094
Date and Time:	Section 1: Sunday Thru Thursday 8:00am – 9:20am, Room # 308 (Faculty of Allied Health Sciences Building)
Office Hours:	Sunday & Tuesday and Thursday 9:30 – 10:30 am.
Course Coordinator	Dr. Hanan Al-Modallal

Course Description:
The field of epidemiology, including its history and contribution to public health, is highly essential in a variety of undergraduate and graduate degree programs. Subjects of epidemiology are required in public health, environmental health, nursing, health research, and other health-related disciplines. This course introduces students to fundamentals of epidemiology including basic concepts and methods used in epidemiology. The overall purpose of this course is to help students understand how epidemiology contributes to: (1) assessment of diseases, (2) identifying factors associated/causing diseases, (3) describing history of disease, and (4) providing procedures for prevention and controlling diseases. Issues of protection, prevention, needs assessment, and risk analysis are introduced.

Course Objectives:

A. General objective:
Students will gain understanding of the fundamental concepts of epidemiology and its role in public health research and investigation. Students will become familiar with epidemiologic terminologies, outcome measures, and study designs in an effort to apply epidemiologic methods to other related fields and programs of study.

The main Intended Learning Outcome (ILO) that is measured throughout this course is "*Critical Thinking*." This ILO is conceptually defined as "a cognitive process that aims at using the rational and logical examination of ideas for the purposes of understanding, problem solving, and decision-making." Critical thinking will facilitate the process of ***teaching/ learning,*** which is originally a change in thinking or behavior.

Intended Learning Outcomes:

I- Caring
II- Communication
III- Critical thinking
IV- Therapeutic intervention
V - Leadership
VI- Employer's satisfaction

B. Specific Objectives:

The specific objectives of this course are built based on Bloom's taxonomy. The domains of this theory are Cognitive: mental skills (*Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation*). **Affective**: growth in feelings or emotional areas (*Attitude*, *Receiving Phenomena, Responding to Phenomena, Valuing, Organizing, Internal Valuing*). **Psychomotor**: manual or physical skills (*Skills*, *Perception, Set, Guided Response, Mechanism, Complex Overt Response, Adaptation, Origination*).

Intended Learning Outcomes (ILOs) will be achieved via student's ability to:

Caring:

- Apply basic epidemiological concepts to current health problems.
- Define appropriate comparison groups for epidemiologic studies.
- Interpret descriptive and inferential statistics results and find relative conclusions.
- Apply concepts of bias and confounding to care provided to clients.

Communication:

- Communicate results of Risk values (including Relative Risk and Odds Ratios), appropriately.

Critical Thinking:

- Understand basic concepts and methods of epidemiology.
- Differentiate between exposure variables, outcome variables, and extraneous variables.
- Understand criteria of causal relationships.
- Analyze conclusions of research and popular media concerning health problems.
- Understand major study designs focusing on populations of different characteristics.
- Critique the study design, variables, confounders, bias issues in quantitative studies.

Therapeutic Intervention

- Apply causal relationships to some investigations in the field of allied sciences.
- Evaluate quality of collected data.
- Apply values of Risk measurements to the filed of study and its clients.
- Apply concepts of confounding and bias to descriptive and analytic studies.

Leadership:

- Propose strategies to promote health at selected fields.
- Identify sources of epidemiologic data.
- Identify public health problems in terms of place, time, and person.
- Apply epidemiologic method to identify health problems, formulate hypotheses, set study design, analyze data, and interpret results

Employers' Satisfaction

- Find ways to market self through presenting different treatment modalities to the consumer.
- Convince employer of presence of possible bias and confounders in some study findings based on nature of studies.

Teaching Methods:

- Moodle
- Audiovisuals
- Discussions
- Guest speakers
- Class activities to promote critical thinking

Required Text book:

Merrill, R., M. (2013). *Introduction to Epidemiology*. Burlington: Jones and Bartlett Learning. **Sixth edition.**

Aschengrau, A., & Seage III, G. (2008). Essentials of Epidemiology in Public Health. Jones and Bartlett Publisher, LLC. **Second edition**

OR

Botina, R., Beaglehole, R, Kjellstrom, T. (2006). *Basic Epidemiology*. Geneva: World Health Organization. 2nd Edition.

Gordis, L. (2000). *Epidemiology*. Philadelphia: W.B. Saunders. 2nd Edition.

Evaluation Methods:

First Examination	30%	To be Arranged
Second Examination	30%	To be Arranged
Final examination	40%	To be Arranged

Course's Policy:

1. The general rule is the regular attendance of students for all lectures.
2. It is not allowed for any student to be absent for more than 15% of course's credit hours.
3. The student whose absence exceeds the 15% of course's credit hours (4 lectures) without an acceptable excuse will not be allowed to take the final exam and his/her record in the course will be marked by "failed".
4. When students get absent for more than 15% of course's credit hours with an acceptable excuse, their record will be marked by "withdraw" for the course.
5. Students who represent the Kingdom and the university in curricular or extracurricular activities are allowed to be absent up to 20% of course's credit hours.
6. Any sick leave is to be issued or considered by the university's doctors and should

be submitted to the course instructor within a week to be able to take a make-up exam; if not the student will be considered failed in that exam.

7. If a student is absent from a final exam he/she should show an acceptable excuse as soon as the cause of absence is eliminated to avoid "failed" in the course. Such excuse should be directed and approved by the Dean. Only, the university's doctors or an Emergency Room of a governmental hospital or clinic could issue a medical report for an absent student. The make up final exam should be taken during the second week of the next semester, in maximum. The summer course is considered as "a next" semester for this purpose.
8. Your ID should be available at the time of exam.
9. Turn off your mobile during the lecture.

Students With Special Needs: Students with special needs should consult with their course coordinator to be able to provide them with resources and help when needed.

Attention

Notes for this course will be available for students before each class.

Course Outline

Week	Topic	Readings
Week 1	**Introduction**	
Week 2	**Foundations of epidemiology** - Related definitions - The epidemiology triangle - Modes of disease transmission - Chain of infection - Levels of prevention	**Chapter 1** Merrill, R., M. (2013)
Week 2 &3	**Practical Disease Concepts in Epidemiology** - Communicable and noncommunicable diseases - Natural history of disease - Classifications of disease - Portals of entry to human body - Protecting public health through immunization - Communicable disease prevention and control - Disability	**Chapter 3** Merrill, R., M. (2013)
	Descriptive Epidemiology According to Person, Place, and Time: - Public health surveillance - Person - Place - Time	**Chapter 5** Merrill, R., M. (2013)
	General Health and Population Indicators - Health indicators - Selected health indicators	**Chapter 6** Merrill, R., M. (2013)
	First Exam	
Week 4&5	**Design Strategies and Statistical Methods in Descriptive Epidemiology** - Related definitions - Descriptive study designs - Types of data - Ratios, proportions, and rates - Tables, Graphs, and Numerical Measures - Measures of statistical association	**Chapter 4** Merrill, R., M. (2013)

	Measures if Disease Frequency - Measuring disease occurrence - Measures of disease frequency - Data organization	**Chapter 2** **(**Aschengrau, A., & Seage III, G. (2008)**)**
Week 7	**Bias and Confounding** - Major types of bias - Confounding - Controlling for confounding	**Chapters 10 & 11** **(**Aschengrau, A., & Seage III, G. (2008))
Week 8 & 9	**Design Strategies and Statistical Methods in Analytic Epidemiology** - Observational analytic studies - Odds Ratio in case-control studies - Bias in case-control studies - Strengths and weaknesses of case-control studies - Risk Ratio in cohort studies - Bias in cohort studies - Strengths and weaknesses of cohort studies	**Chapter 7** Merrill, R., M. (2013)
	Second Exam	
Week 10	**Experimental studies in epidemiology:** - Experimental designs - Designing a Randomized Controlled Trial (RCT) - Pilot study - Strengths and Weaknesses of Double-Blind Randomized Clinical Trials (RCT) - Ethics in experimental research	**Chapter 8** Merrill, R., M. (2013)
Week 11	**Causality:** - Causal association - Hypothesis development and testing - Chance, bias, and confounding - Causal inference - Causal criteria	**Chapter 9** Merrill, R., M. (2013)
Week 12	**Field Epidemiology** - Field investigation - Steps for conducting a field investigation	**Chapter 10** Merrill, R., M. (2013)
Week 13	**Chronic Disease Epidemiology** - Chronic disease - The Environment and Chronic health problems - Behavior and chronic health problems - Heredity and chronic health problems	**Chapter 11** Merrill, R., M. (2013)

Week 14	**Clinical Epidemiology** - Screening and diagnosis - Validity, reliability, and yield - Evaluating the screening test	**Chapter 12** Merrill, R., M. (2013)
Week 15	**Revision**	
TBA	**FINAL EXAMINATION**	